

# AMATEUR RADIO

VOL 51, No. 11, NOVEMBER 1983

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



Build a Tri and Quad & a Morse Code Trainer  
Try a VOX in a Box  
Microwave Matters  
List of ALARA Members  
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# AMATEUR RADIO



Enjoying JOTA '83 are L to R: Tony VK2PNR, Greg Davis from 1st Ermington Scouts, Sherryn Gray of Telopea Guides and Michael Johansen of 1st Ermington Cubs.

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## DEADLINE

All copy for January RA must arrive at PO Box 300, Caulfield South, 3162 NO LATER than 18th November.

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OF  
ACCESSORIES  
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■ FINE TUNING for coverage of all  
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A range of accessories  
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## THE ONLY SCANNER THAT GOES 26-88, 108-180 & 380-514 MHz

### SPECIFICATIONS

- Type: FM & AM
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b) 58-88 MHz Space... 12.5 kHz  
c) 108-180 MHz Space... 5 kHz  
d) 380-514 MHz Space... 12.5 kHz
- Sensitivity: FM: a) 26-180 MHz 0.6 uV S/N 12 dB  
b) 380-514 MHz 1.0 uV S/N 12 dB  
AM: a) 26-180 MHz 1.0 uV S/N 12 dB  
b) 380-514 MHz 2.0 uV S/N 12 dB
- Selectivity: FM: More than 60 dB at -25 kHz  
AM: More than 60 dB at -10 kHz
- Dimensions: 210 (W) x 75 (H) x 235 (D) mm  
8-1/4 (W) x 3-1/4 (H) x 9-1/8 (D) in.
- Weight: 2.8 Kgs.
- Clock Error: Within 10 sec./month
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- Scan Rate: Fast ..... 8 Channels/sec.  
Slow ..... 4 Channels/sec.
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Slow ..... 5 Channels/sec.
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- Ant Impedance: 50-75 ohms  
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plus \$10  
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Scan-X Base Antenna \$62 + \$10 P&P

# JIL SX-200

## A BETTER SCANNING MONITOR RECEIVER

### HIGH QUALITY AND PERFORMANCE

JIL have designed the SX-200 as a high quality, high performance programmable scanning receiver at a realistic price, design criteria which are not born in many other receivers of its type.

### MECHANICALLY RUGGED

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### 4 BIT MICROPROCESSOR WITH ONBOARD ROM AND RAM

A powerful 4 Bit PMOS Microprocessor, the uPD553, is used as a controller in the SX-200. Its features include 2000 x 8 ROM and 96 x 4 RAM onboard as well as up to 80 instructions with a 3 level subroutine stack.

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Monitor thousands of frequencies including many Military & Civil

**HF-VHF-UHF**



### FULLY TRACKED RF AMPLIFIERS

The SX-200 makes use of 3 separate RF Amplifier Stages. They are divided into 6 bands, each band having its own electronically switched coils which are fully tracked with the receiver frequency using Varicap Diodes. Maximum performance is thus gained over the entire operating range of the set.

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Increase the memories of your SX-200 to 32 with this memory expander kit.  
\$53 + \$2 P & P

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Provides automatic AM operation on the 27 MHz CB MARINE and AIRCRAFT bands.  
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#### ■ CVR-1B CONVERTER

allows your SX-200 to cover 180 to 380 MHz (incl. SPACE SHUTTLE frequencies).  
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#### ■ CVR-2 CONVERTER

allows your SX-200 to cover the SHORT WAVE bands, 0.55 to 30 MHz.  
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#### ■ MFJ-332 VLF CONVERTER

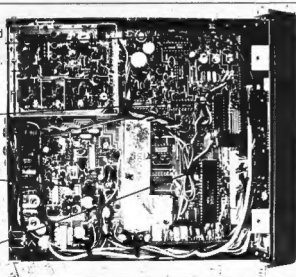
allows your SX-200 to cover 5 KHz to 1600 KHz  
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Rugged double sided epoxy glass circuit board.

2K Cmos RAM

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4 Bit Micro-processor.



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## GFS Electronic Imports

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PO Box 97, Mitcham, Victoria, 3132 Phone: (03) 873 3939, 873 2652  
Telex: GFS AA 00054 Cable: "Comimports" Melbourne

# When it comes to Transceivers ICOM has

## IC-271A 25 Watts of FM, SSB, CW for 2 Metres.

**Output power:** 25 Watts of power from either 12 Volt DC or from 240 Volt AC with an optional internal power supply.

**Memories:** 32 full function memories for frequency, offset, offset direction.

**PLL locked to 10Hz**

**Display:** 7 digit frequency fluorescent display plus mode, offset, VFO, memory channel and RIT offset.

**Memory Scanning:** IC-271A scans programmable memories, programmable band sections or modes.

**Dual VFOs:** Allowing transfer from memory to VFO. Memory to memory transfer with no frequency change.

**New Size:** Only 11 1/4" W x 4 3/4" H x 10 1/2" D.

## Revolutionary New Communications System

### IC-120 Mobile 1.2GHz FM

**Memories:** Six memory channels plus two VFOs. Storing frequency, offset direction and offset frequency.

**Scanning:** Scan memory, all 40MHz or just a segment.

**Duplex:** Work more than repeater offset with IC-120s programmable offset system.

**Tuning Rates:** 3 different rates 10KHz, 20KHz or 1 MHz.

**RIT:** On FM allows  $\pm$  5KHz tuning of signals offset from yours.

**Display:** Four digit green LED for day-night visibility.

**Size:** A tiny 2" H x 5 1/2" W x 8 1/2" D.

**Repeater capability:** Team the IC-120 mobile with an IC-RP1210 repeater for a complete system. (More details on IC-RP1210 repeater next page.)



## IC-471A 430-450MHz Base Transceiver.

**Memories:** 32 memory capacity. Storing frequency, mode, offset direction and offset frequency for easy return to any frequency.

**Phase Lock Loop:** Low noise, good signal to noise ratio. PLL allows lock to 10Hz for accuracy.

**New Display:** Easy-to-read two colour fluorescent display shows frequency, mode, offset direction, VFO in use, memory channel and RIT offset.

**Scanning:** IC-471A scans memory, programmable band and mode.

**New Size:** Only 11 1/4" W x 4 3/4" H x 10 1/2" D.

**Repeater Compatibility:** Team the IC471-A with the IC-RP3010 25 Watt FM Repeater. (More details on IC-RP3010 on next page.)

## IC-751 100KHz to 30MHz Competition Grade.

**Receiver:** Has a 105dB dynamic range. The IC-751 has a deep IF notch filter, adjustable AGC and noise blanker audio tone control plus RIT with separate readout.

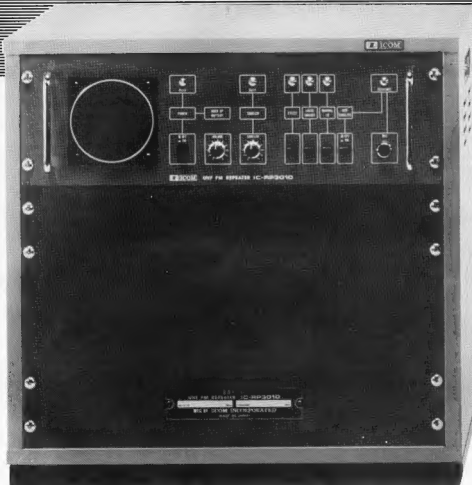
**Transmitter:** 12 Volt DC design. Quiet relay selection of transmitter LPFs transmit audio tone control, monitor circuit, XT, and a high performance speech processor enhance the IC-751 operation.

**Dual VFOs:** Controlled by large tuning knob.

**Memories:** 32 tunable memories to store mode, VFO and frequency. Scanning capability of frequencies and memories.

**Display:** High visibility, multi-colour fluorescent display, with frequency in white, other functions in white or red.

# sceivers and Repeaters the range



## **IC-RP3010 FM Repeater.**

**Complete your system with the NEW 440MHz Repeater.** A 10 Watt 400MHz FM repeater. The IC-RP3010 features high stability crystal controlled channels CTCSS system, ID'er, remote control through a DTMF decoder and microprocessor controlled circuitry. **Repeater soon to become operative in Melbourne, end of 1983.**

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with ICOM Australia.



# **ICOM**

## **The World System**

# AMATEURS: CAN YOU MEET THE CHALLENGE!

Remember the good old days of amateur radio? When an amateur built his own gear - and was so proud of it!

Sadly, those days passed! With incredible advances in technology, it became economically and technically impossible to compete with commercially built equipment. Now home brewing is here again!

And what's more, with the all-new Dick Smith UHF Explorer, you'll end up with a transceiver less than the cost of a commercial unit - and not just as good, it's better!

YES! A completely up-to-the-minute design featuring phase-locked-loop frequency synthesis.

**Exclusive to  
Dick Smith  
Electronics**



Unit shown is fitted with optional upgrade kit

## WE APOLOGISE . . .

Hundreds of amateurs have wanted this outstanding new kit . . . far more than we could supply! Now for the good news:

We've made up some more kits for distribution to our stores and mail order centre. Be warned - some parts are still pretty scarce so we haven't been able to make all the kits we wanted to. To avoid further disappointment, order your kit NOW!

## And for those waiting for the upgrade kit . . .

It's now available! Yes, you can give your transceiver full 436-439MHz repeater capability with standard 5MHz offset, PLUS 'S' meter, and a brand new front panel to suit. Once again, supplies of this kit will initially be limited so hurry in and get yours now!

### SPECIFICATIONS

Frequency Coverage	436.025-439.000MHz in 25kHz steps
No. of Channels	40
Mode of Operation	FM
Supply	13.8V DC. Receiver 340mA with full audio output and all options. Transmitter 2A more (5 watt output)
Receiver Sensitivity	Dual Conversion Superhet 0.4uV for 20dB quieting
Selectivity	+/-7.5kHz - 6dB +/-15kHz - 60dB Better than 80dB
Adj. Chan. Reject	
Transmitter Power Output	5W (typical)
Deviation	+/-5kHz
Spurious Emissions	Better than -60dB

**GREAT  
VALUE!**

## DICK SMITH EXPLORER UHF TRANSCEIVER

**ONLY \$199**

Cat K-6300

### OPTIONS AVAILABLE:

Upgrade Kit (Cat K-6302)  
(Repeater, S meter, additional xtal filter & new front panel) **ONLY \$24.50**

Antenna Kit (Cat D-4014)  
1/4 wave stainless steel whip, co-axial fed UHF antenna base, PL-259 plug, 3.5m low loss UHF co-ax, gutter grip mount and cutting instructions . . . . . **ONLY \$24.50**



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## a word from your EDITOR

During this year Oscar 10 has gone aloft and is providing new horizons for satellite operation. Many have made interesting contacts over great distances aided by the satellite borne repeater.

As this issue arrives an amateur will actually be operating from the Space Shuttle Columbia. Dr Owen Garriot, W5LFL will give many a unique, if brief, contact as he passes over in the space shuttle.

With new satellites, an amateur operating from space and new operating privileges the Amateur Radio Service is forging ahead.

Don't forget Amateur Radio Magazine. With all the new frontiers in amateur radio help others enjoy them by writing an article. Good articles are always needed particularly on the new frontiers. However don't forget the newcomer who also needs articles on more basic subjects.

Amateur Radio Magazine is for all and needs a broad spectrum of material. New techniques, general interest, and basics are all equally welcome.

AR



## WIA NEWS

### FESTIVAL

The Fourth International Festival of Telecommunication and Electronic Films is being held in Geneva between the 26th October and the 1st November 1983. Known as the "Golden Antenna" film festival, it is organised by the ITU as part of the Telecom '83 World Telecommunication Exhibition.

The Institute has entered a 16mm film called "Amateur Radio — A National Resource" printed from a video tape made for the WIA video library. The film will be shown in the General Category and is suitable viewing for the general public as it gives an insight into our hobby and many of its aspects.

There are eighty entries from twenty-six countries and three international organisations, our film appears to be the only entry from Australia.

An international jury consisting of experts in either film production, telecommunications and electronics will assess the entries, judging being based on content/purpose achieved, promotion of telecommunications at National and International level.

### INSURANCE

An Insurance brochure is being circulated bearing the Institute's Business name.

Members should be aware that the Institute has no connections whatsoever with this venture.

### PHONE PATCH

A draft of a Discussion Policy on phone patching has been received at Federal Office. Further information will be printed at a later date.

Copies of this draft are available from Telecom Headquarters.



### HELP PREVENT PIRATES

Keep bands for licensed amateurs.

DO NOT sell transmitting equipment to unlicensed operators.

### WHAT DO I GET OUT OF THE INSTITUTE?

Shortly all members will be receiving their subscription notice. You may wonder is it worth renewing again this year. "What do I get out of the Institute". Read on...

*Why should I pay my annual subscription? I live in the country, so I can't get to a WIA meeting in the city. I don't work DX, so I don't need the QSL bureau. I am not much of a reader, so I don't need the cheap technical books from the bookshop.*

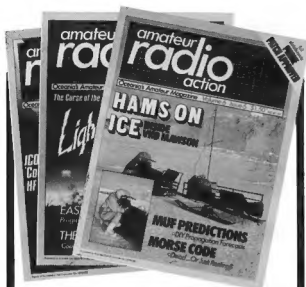
*I live in a provincial centre and my arguments are the same. I belong to the local radio club, and it is affiliated with the Institute. Maybe on the surface, a lot of people don't get a lot from being a member, except a very good magazine once a month. That is if you don't count your amateur licence, or being in an organisation that represents you on a State level with the local office of the DOC and on a national level with the Federal Government.*

*If you don't count the good deal that we got out of WARC 79 or the work done on your behalf regarding the detailed submission on the new radio-communications bill. If you forget the representation on your behalf at the Region 3 Association meetings which influences the IARU, the World Amateur Radio body.*

*If none of this gives you the message, how about the fact that you belong to the oldest amateur radio society in the world and that old one about... UNITED WE STAND...*

by Bud Pounsett, VK4QY  
in QTC, August 1983

AR



**IF YOU HAVEN'T LOOKED AT**

**amateur  
radio**   
**action**

**LATELY, THIS IS WHAT  
YOU'VE MISSED**

- Up to date News and Views
- Advance News on the Latest Rigs
- Complete Awards Information
- The Latest DX News & QSL Routes
- Complete Contest Information
- Lab Tests of the Latest Transceivers
- Spratly Island — In Depth.
- Heard Island — The VKQJS Report.
- Computer RTTY the Easy Way.
- Worldwide HF Beacon & Net Listing.
- A Cheap VFO for the FT-707.
- Amateur Operation in the Pacific.
- Radial & Ground Systems for Vertical Antennas.
- The Facts about Lightning & Its Effects.

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crank up tower line**

A range of telescopic towers  
for amateur and commercial  
applications, from 6.5m to 20m,  
with tilt-over facility enabling  
antennae installation and  
adjustment to be done at ground  
level.

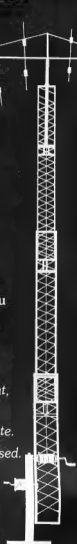


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these features?**

- *Rugged, all welded, diamond web construction.*
- *Hot Dip Galvanized inside and out, after fabrication.*
- *Easily erected on a limited area site.*
- *Only heavy-duty marine fittings used.*
- *Rotator mounts inside tower.*
- *Thrust bearing fitted.*
- *Engineering drawings supplied (including foundation detail).*

**SKYTRIM — A Tower of Strength**  
Further details available from —

Bruce P. Pinkerton,  
P.O. Box 428, Parramatta. N.S.W. 2150  
Australia. Tel. 635 3555, 635 8777





# QSP



## FIFTY MEGACYCLES REVISITED??

The insert to August Amateur Radio and the following month's QSP by the Federal President Bruce Bathols, have caused the sparkle to be returned to the eye of many a hardened six metre operator — especially those old hands who can well remember the "good old days" before Channel 0!

It is a pity that so many years and so many good opportunities for rare DX have been missed, while the bureaucratic wheels have been turning ever so slowly over the return of this band to amateurs. However the good news of 50-50 150 MHz is certainly a positive first step in the right direction.

All is not over yet! While some Australian six metre operators have little to worry them, as their nearest Channel 0 station is hundreds perhaps thousands of miles away, the vast majority of us have many a potential problem right 'next door', together with restraints imposed by DOC.

A review of the 50-50 150 MHz allocation is to be made in about twelve months. It is obvious that in this case the 'review' is to answer one fundamental question — "can the Amateur Service and Broadcast Service co-exist in this part of the spectrum?"

This should not be confused with any sort of "right" question as this is a separate issue.

It would seem logical that any self respecting broadcaster will be trying to "prove" that such co-existence is undesirable because of "observed interference problems"!!

ANY INTERFERENCE to Channel 0 is likely to be labelled 'Amateur', unless we can prove otherwise when the time comes.

So for the next twelve months, ALL six metre operators have a very special responsibility, to themselves and all future amateurs. They have to help to prevent this sort of broad sweeping interference statement becoming THE reason for our loss once again of this valuable band.

## READ ON!

Interference to the broadcasting service in this part of the spectrum is problematical at any time. Interference from an amateur transmitter is only one possible source.

Many viewers have improperly installed receivers and aerials, which experience shows is frequently the case in areas where Channel 0 has been in operation for a relatively short period. Interference from powerlines, especially IN these weak signal cases, is a major problem.

In this part of the VHF spectrum, other forms of electrical interference, including motor vehicle 'ignition noise', can severely disrupt viewing.

Yet another source of interference during the DX season is mutual interference between Channel 0 stations.

So that reasoned debate can take place at the time of review, it is imperative that ALL users of the six metre band — irrespective of which state they are located, and irrespective of whether a Channel 0 station is nearby, keep accurate and detailed logs for the next twelve months.

Not only should logs reflect the amateur radio operations but also any television interference observed together with a statement of its possible cause or source. This is most important in the case of suspected, mutual or co-channel interference from another television station.

At this time, we are not asking for copies of your logs — we are simply trying to implement an insurance policy for the future — for your future use of the 50 MHz band, and like insurance, your logs may not be needed. However, it could well be too late after the event!!

Let's ensure that we are not just re-visiting 50 MHz, but are here to stay with the ultimate aim of recovering the remainder of the 50-52 MHz allocation.

It is all up to you now — the six metre operators.

Peter Wollenden VK3KAU  
Immediate Past President





# MICROPHONE EQUALISER

## — A Weekend Project No. 3

Ivan Huser, VK5QV

7 Bond Street, Mount Gambier, SA 5290

I have long supported the concept of a station microphone mounted on a flexible goose-neck clear of the operating area. The graphic equaliser described in this article resulted from the need to improve the on-air 'sound' of an electret microphone used in this manner. I must admit that an electret was chosen more for its looks than its suitability as a station microphone.

As most will be aware, the human ear is somewhat insensitive to changes in volume but extremely sensitive to changes in pitch. That is to say, sounds of equal intensity but differing in pitch will give the impression of dissimilar intensity. Thus if those frequencies most essential to good speech communication are accentuated and at the same time non-essential frequencies attenuated, an overall improvement in the clarity of the transmission will result.

The use of a graphic equaliser allows the output from a microphone to be tailored to suit the characteristics of the human ear, the speech characteristics in the transmitter and the voice of the operator.

Figure 1 compares the frequency response of the electret microphone with that of a Shure 444D communications microphone which is well respected in amateur circles. The 'wooliness' associated with some signals heard on the air, may be attributed to some extent to the flat frequency response of the microphone or at least to a lack of high frequencies. High quality studio type microphones make poor communication microphones for these reasons. For effective communication frequencies below about 300 Hz should be attenuated since they contribute nothing to the intelligibility. The mid range and high range frequencies should be accentuated.

### Circuit

A three-filter equaliser was chosen to give about 12 dB of boost or cut at approximately 400 Hz, 1.5 kHz and 2.7 kHz. Depending on the microphone used, some alteration to the value of input capacitor may be required to obtain a smooth roll-off at the low frequency end. Values as low as 0.01  $\mu$ F can be tried in this position.

The three filter circuits are identical except for the values of the capacitors which determine the centre frequency of the respective filter. Different frequencies to those given may be obtained by using other combinations of capacitors. The resonant frequency (in Hz) for other combinations of capacitors (in  $\mu$ F) may be determined from the formula.

$$f_0 = \frac{159}{\sqrt{C_1 C_2}}$$

The on-board gain control has a range of approximately -10 dB to +13 dB allowing for different levels of microphone output. The input impedance is 47 k and the output impedance around 500 ohms which should suit most combinations of microphone and transceiver.

The ferrite beads provide some RF filtering, but additional filtering may be required depending on the installation.

### Components

All components are readily available. Resistors are  $\frac{1}{4}$  watt and the trim-pot a horizontal mounting cermet type. All polarised capacitors are tantalum, although ordinary electrolytic types should prove satisfactory.

The frequency determining capacitors should be of good quality and close tolerance if no facility for checking the centre frequency of the filters is available.

Components associated with the microphone bias supply may be omitted if a microphone other than an electret is used.

Construction of the printed circuit board should present little problem and a full-size pattern is given in Figure 3.

### Construction

The unit should be enclosed in a metal box to reduce the possibility of RF feedback. Leads to the potentiometers should be as short as possible and if batteries are used to power the equaliser, they should be located inside the box.

If an AC power supply is used, care must be taken to prevent hum loops and the entry of RF. I use a completely floating supply and extensive RF filtering with good results.

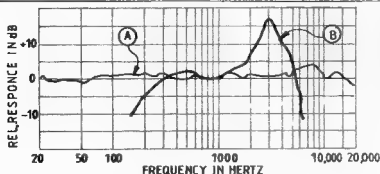
If the problem with RF feedback persists, extra filtering of the audio input and output leads may have to be employed. Feed-through capacitors of about 0.001  $\mu$ F may be all that is necessary.

### Adjustment

Although no audio signal generator and an oscilloscope would be useful for checking the operation of the equaliser, it is not absolutely essential. If close tolerance capacitors have been used in the filters the centre frequencies should be very near the calculated values.

The easiest way to get the feel of the equaliser is to connect it to the input of a tape recorder and adjust the boost/cut controls to various positions until the desired effect is obtained. Use these final settings for the initial on-air tests.

Connect the equaliser to the transmitter and adjust the on-board gain control to give the same output as is obtained from the microphone without the equaliser. A few minutes with the co-operation of a reliable



TYPICAL FREQUENCY RESPONSE

Figure 1 — (A) Electret Microphone (B) Communications Microphone (Shure 444D)



# A Ten GHz Coupler and other Microwave Matters

Des Clift VK5ZO  
PO Box 274, Mount Barker SA 5251

**The 3 cm amateur band (10,000-10,500 MHz) which apparently boasts thousands of QSO's per year in Europe, particularly in the UK and Germany, has received little attention from the amateur fraternity in this country.**

As G3BAK, I was amongst the first to operate this band in the UK, having a QSO with G3LZ in January 1950 over a range of several miles. Ever since then the fascination of 3 cm has remained, even though the annual QSO rate has ranged from zero, to about ten in a particularly 'active' year. Equipment has been updated and practically all the possible arrangements have been investigated and tried out at some time. Sources of information on equipment for, and operation in this band are:

*The RSGB 'VHF/UHF Manual' 'Microwaves' — a monthly column in the RSGB's Radio Communication*

*The German quarterly 'VHF Communication' — available from WIA or direct.*  
*A series by the writer in 'Electronics Australia' — May-October 1972*

A few years ago, with the introduction of the 'Gunnplexer' a state of the art commercial oscillator/mixer assembly employ-

ing a circulator, all seemed set for an increase in activity in Australia, as this unit provided all the bits that were normally too expensive to purchase new, or so difficult to acquire on the surplus market that all, but the most enthusiastic, tended to give the band away. However, this was relatively short lived as the price of these units has now soared to their true commercial value, around \$400, due to the manufacturer (Microwave Associates) altering their marketing policy on this particular item.

For some time I have been considering what could be done to fill the equipment gap, and finally got around to doing something about it over the Christmas break, following a visit from Frank Sleep VK4CAU who told of lots of interest in the Brisbane area, and, in particular, a desire to use the well known Philips Intruder Alarm Module, which has been sold in quantity for a number of years, and which is probably lying dormant in many a shack.

These modules contain a 10 mW Gunn diode and a high sensitivity video mixer in separate cavities, and normally operates on 10,525 MHz but easily tune down into the top end (10,350-10,500 MHz) of the amateur band.

A few rapid experiments prior to a second visit by Frank, a couple of days later, led to the production of a prototype on which a number of measurements were still required, but which appeared to be the best compromise for getting people on the band with minimum outlay, microwave knowledge or fancy test gear.

The idea adopted was to utilise both halves of the Philips cavity, as opposed to the use of only one half of two units operating as a separate transmitter and receiver, or the use of the Gunn diode section as a self oscillating mixer. It is not feasible to use the cavity in its normal configuration for anything but the most local of contacts.

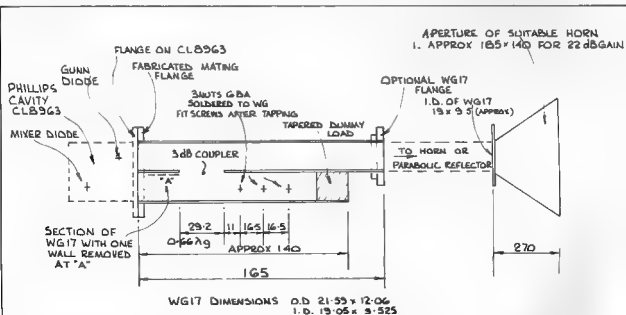


Fig 1 — 10.3-10.5 3 dB Coupler for use with Philips Cavity CL8963.

It was also decided at the outset to replace the Schottky mixer crystal by the standard X band IN23WE, as it was assumed from bitter experience, that most of the original crystals in the units still around would be unserviceable anyway. The IN23WE is a better choice for the job of a high IF mixer (30 MHz or the FM broadcast frequencies are the standard), and is available at a reasonable price off the shelf.

Now the Philips cavity does not use standard X band waveguide (WG16), but is a diecasting with two outputs whose sizes closely resemble WG17, some of which I had obtained recently for experiments with the forthcoming Australian Satellite Programme. The use of this particular size of waveguide provided the answer to the problem of how to use the Philips cavity for serious amateur work.

When two pieces of WG17 were placed side by side they were only marginally larger than the Philips cavity flange, so why not separate the Gunn diode and mixer sections by means of a continuation of the Philips cavity in two pieces of WG17, and introduce the well known 3 dB coupler system as the means of providing duplex system operation with its inherent 6 dB system loss? (3 dB of the transmitted signal is lost in the dummy load in the mixer arm, and 3 dB of the incoming signal is lost in the Gunn oscillator).

The mating of the Philips cavity to the 3 dB coupler made from WG17 was made more accurately by removing one wall of one of the waveguides. This is normal practice when making 3 dB couplers of the type used and, therefore was most convenient.

The piece with the wall removed was used for the mixer section, thus allowing the unmodified waveguide to be used for connection to the antenna, either directly or as in the prototype — by means of a WG17 square flange.

The 3 dB coupling is produced by removing  $0.66 \lambda_g$  (29.2 mm) of the joining wall of the main waveguide, and the unused arm in the mixer section is terminated in a dummy load, in front of which is placed a mismatching screw tuner which is used to set the mixer current to about 0.4 mA-0.7 mA. A flange to mate with the Philips cavity flange was designed and fabricated and, joined the two units together.

The antenna used for the prototype was a 22 dB gain horn made from cheap PC board. It was fitted with a home made flange to match the WG17 flange on the output of the 3 dB coupler unit.

In order to make sure the prototype was functioning correctly it was necessary to make up an adaptor from WG17 to WG16, which is the size of all the 3 cm test equipment at VK5ZQ. Also, an adaptor from WG16 to one half of the Philips cavity was required and produced so that each of these halves could also be introduced into the WG16 test equipment. Some dummy loads of reasonably good performance were also essential and, in fact the fabrication of these bits and pieces and the test of the prototype took 20-30 hours, after the prototype itself was completed.

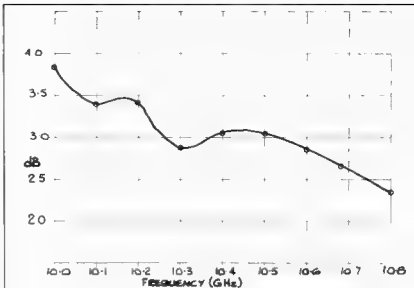


Fig 2 — Insertion Loss of Prototype 3 dB Coupler. (Unused arms terminated).

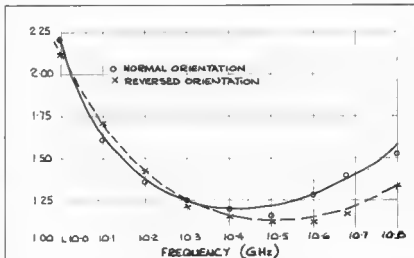


Fig 3 — VSWR of Prototype 3 dB Coupler (all unused arms terminated)

The results were as predicted, and showed the unit was perfectly compatible with the Philips cavity and was suitable for use from 10,300-10,500 MHz. In all probability it will be compatible with some klystron equipment on 10,100 MHz still in use at VK5ZQ.

The two graphs, Figs 2 and 3, show the insertion loss and VSWR of the prototype coupler, and the drawing, Fig 1, gives enough information for the 3 dB coupling element to be reproduced. The insertion loss in these measurements was made under ideal conditions, with the two unused arms terminated. In practice both the antenna and crystal ports are not perfect matches, and the three screw tuner, of necessity deteriorates the other port. How-

ever, measurements made with the IN23WE in place showed that, as the crystal current was increased to the normal operating range the insertion loss of the coupler was very near to 3 dB (with the three screw tuner out of circuit the current was about 100  $\mu$ A and the insertion loss had increased to 4 dB).

Obviously this is a point to be borne in mind when adding an IF preamplifier at the crystal as a little forward bias may well serve to optimise the system by providing a useful variable.

In view of the difficulty of obtaining materials such as waveguides and flanges I have, through my own organisation 'Micro-wave Developments', imported a sufficient

quantity of WG17 and flanges to make about 20 sets of equipment, and have added the equipment to my product list. A complete set comprising a Philips Cavity, suitably modified and tuned to the amateur band, the 3 dB coupler assembly (described in the notes), and a 22 dB horn is listed at \$125 inc 20% Sales Tax

I am also prepared to supply 300 mm length of WG17 plus a square WG17 flange for \$27.50 (including P&P & 20% ST) to those amateurs who would like to make up their own coupler to use with their own Philips cavities, horn or parabola

To further assist those with no access to a frequency meter I will gladly, for the cost

of the return postage, return anyone's Philips cavity to either 10,350, 10,380 or 10,450 MHz (allows for both 30 & 100 MHz IF systems) and replace, at my standard list prices, any unserviceable Gunn or mixer diodes I find

AK

## JAPANESE DX?? ON HEDLAND 2 METRE REPEATER

It's not often that you hear Japanese spoken on 2 metres in Australia but that's the kind of thing you can expect in the North West of Western Australia.

The story started in July 1983, when Dave VK6YA first met Eisuke Yamamoto JA5FJD, a ship's radio operator on the "Shinryu Maru", at Wickham. This and other ore carriers often berth at the North West ports to load iron ore for the Japanese market. From that meeting approaches were made to Glen VK6KY, one of the local DOC representatives, to find out if Eisuke, a first class ships operator, was eligible to obtain a VK callsign. After much work on the part of the people concerned the application was made and approved.

On 23rd August 1983 the "Shinryu Maru" berthed at Port Hedland where Brian VK6AIH and Dennis VK6CZ collected Eisuke and escorted him to the DOC office where the final papers were waiting to be signed to give him a full AOC licence.

The callsign issued was VK6EY, which apart from being a two letter callsign (not common in Japan) was also his initials. The excitement of the ocean was contagious and with typical Japanese politeness Eisuke shook hands with everyone and with the biggest smile seen in a long time he trooped everyone outside to take photographs.

Later, on board ship with a borrowed 2 metre rig, a converted STC 151, Eisuke fired up with such enthusiasm that for a while he mixed his two callsigns.



L to R: Eisuke VK6EY/JA5FJD, Dennis VK6CZ and Brian VK6AIH in the radio room of the "Shinryu Maru".

Then the Japanese language lessons started with lots of fun and learning all round. Fortunately the Wickham repeater was "in" so Dave, who did all the organising, was able to congratulate the "new" amateur.

DENNIS VK6CZ

AK

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# EQUIPMENT REVIEW

## THE KB R-X NOISE BRIDGE

Ron Cook, VK3AFW  
TECHNICAL EDITOR  
6 Dallas Avenue Oakleigh, Vic 3166

### WHAT IS IT?

A bridge is a circuit used for measurement of, for example resistance or impedance. It is provided with appropriate terminals for an energising signal, the unknown resistance (impedance etc) and a null detector. When everything is connected up and switched on the bridge's measuring dials are adjusted until the null detector indicates a minimum reading or null. The value of the component is then read from the dials.

An R-X bridge measures R (resistance) and X (Reactance). It is therefore an AC or RF bridge and needs a null detector such as a wide-band voltmeter or a general coverage communications receiver.

If tests are made on a number of different frequencies quite a lot of time is spent setting up a modulated signal generator and the receiver on each frequency.

A noise generator can be used instead as it generates signals from DC to 1000 MHz or more. An amplifier is required to obtain a sufficiently strong signal. Remember that noise consists of signals of an almost infinite number of frequencies with both AM and FM modulation of random amplitude and frequency.

Thus an R-X Noise Bridge contains a noise generator, a wide band amplifier, a measuring bridge circuit and terminals for connection to the unknown impedance and an external sensitive receiver. Fig 1 shows the circuit of the KB R-X Noise Bridge.

### WHAT DOES IT DO?

The major applications for a noise bridge in the amateur radio sphere are:

1. Measuring components at radio frequencies.
2. Measuring the impedance of an antenna.
3. Measuring the velocity factor of a transmission line.
4. Measuring  $\frac{1}{4}$  and  $\frac{1}{2}$  wavelengths of transmission line.
5. Measuring the VSWR of dummy loads.
6. Measuring resonant frequencies of antennas, tuned circuits etc.
7. Adjusting an ATU for a match without radiating a signal.

### MORE ABOUT THE KB BRIDGE

The KB R-X Noise Bridge is a small instrument suitable for use in the HF region for all the above applications. See Table 1 for the specification. Referring to Fig. 1, you can see that the noise generator is a Zener diode and that a three stage R-C amplifier is used to boost the signal.

A toroidal transformer is used to couple the

Frequency Range:	Over 100 MHz
Power:	9 V Battery, eg Eveready 216 Drain 25 mA $\pm$ 10%
Measurement Range:	Resistance 0-100 ohms Reactance 0- $\pm$ 100 pF

Table 1 — SPECIFICATIONS

noise into the bridge and also forms two equal arms of the bridge.

A variable resistor and capacitor in parallel form the measuring network. A fixed capacitor across the unknown impedance terminal ensures that the bridge can measure both positive and negative capacitive excursions. Negative capacitance corresponds to inductance.

The resistance dial is marked in ten steps of 10 ohms and the capacitor has zero marked at mid scale, XC to the left and XL to the right.

The resistance measurement range is 0-100 ohms although readings at the low end of the scale (10 ohms or less) would not be particularly accurate. The reactance range is  $\pm$  100 pF, negative capacitance being equivalent to an inductance of the same reactance.

That this is so becomes obvious when it is realised that increasing the capacitance of the X dial to give a null is resonating the inductance of Z and reducing the capacitance of X is withdrawing a similar amount as is in Z to retain a balance.

As an example if we find a reading of -50 pF at 26 MHz we can calculate the reactance of 50 pF at 28 MHz which is 113.7 ohms and then calculate the value of an inductance which has 113.7 ohms reactance at 28 MHz. This works out to only 0.646  $\mu$ H.

The bridge is fitted with a standard 9 V battery connector and a length of coax fitted with a PL259 plug for the receiver. The unknown impedance can be connected to a PL259 plug which will mate with the SO239 socket on the bridge.

The instrument is very small and displays good workmanship in appearance and finish. The operator's handbook has recently been revised and gives an adequate description of the bridge's operation and use.

### PERFORMANCE

The bridge was used to test some resistors, antennas and the tuning of an ATU. A Kenwood R1000 receiver was used as the detector. Although a receiver capable of operation without AGC action is recommended, no difficulties were encountered. The R1000 had a modified AGC circuit and was used in the AM mode.

The battery drain will cause the cheapest batteries to become flat quite rapidly. For tests where AC mains were available a regulated DC supply was used.

Frequency (MHz)	R1000's -metre reading (dB over S9)
2	10
3	20
7	30
10	25
20	15
30	5

Table 2 —  
NOISE OUTPUT VS FREQUENCY  
"Z" socket open, controls mid range.

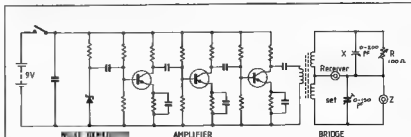


Figure 1 — Circuit of KB R-X Noise Bridge.

The "set" capacitor is used to set the "X" capacitor at mid range when the unknown impedance "Z" is purely resistive. It is set by the manufacturer.

Table 2 shows the noise output at various frequencies. No noise output was detected at 144 MHz. The noise output is quite adequate for most tests in the HF range.

Difficulty was experienced on 7 and 3.5 MHz when a trap vertical in a noisy location was measured. The power line noise was 59 and a good null was not possible. Very good nulls were obtained on 14, 21 and 28 MHz and calculations showed the resonant frequencies and impedances to be in good agreement with VSWR measurements.

The bridge was set to 50 ohms and zero reactance and an ATU used for adjusting an antenna to 50 ohms. The antenna was a GSRV and tests were made on 3.5, 7, 10, 14, 21, 28 MHz. The VSWR was then measured. It was close to 1.0:1 in all cases. The differences could be attributed to small errors in the VSWR indicator.

Further tests were carried out using a Wayne Kerr model B801 VHF Admittance Bridge for comparison. The results are given in Table 3. It must be borne in mind that the X values are estimated on the assumptions that the capacitance is proportional to knob angle and that the range is exactly  $\pm 100$  pF. Differences of 10.15 pF are therefore not necessarily of significance.

Also, as the R dial is marked only every 10 ohms it is doubtful if the dial can be read to better than 1-2 ohms at best. Differences of 2 ohms in the readings should not be taken as

Test Frequency (MHz)	KB Bridge		Wayne Kerr Bridge	
	R (ohm)	X* (pF)	R (ohm)	X (pF)
3	45	-56	43	-41
7	46	-44	44	-39
14	47	-33	45	-32
21	49	-22	46	-28
29	55	-10	51	-22
10	35	-33	34	-20
20	60	45	77	48

Table 3 — COMPARATIVE TEST FIGURES

Readings were generally within 10%. Best accuracy was obtained below 15 MHz; accuracy decreased from high VSWR and higher frequencies.

\* Estimated readings — see text.

significant. Variations at low resistance values are to be expected due to the effects of resistor non-linearity and series inductance effects.

The results for tests below 15 MHz were, in a word, excellent. The performance at 30 MHz was very good for low VSWR impedances but noticeable errors appeared for VSWR greater than 2:1.

#### IN CONCLUSION

This is not a precision laboratory instrument and performance is therefore less than state-

of-the-art. The price is also very much less than state-of-the-art impedance measuring equipment. The measurements it will make are of a useful kind. It can be used instead of a VSWR meter and has the great advantage that you need not key up the rig. You can spend days tuning an antenna right alongside a DX net and no-one will be disturbed.

It is well worth considering as an addition to your test equipment.

The test unit was supplied by K. Bruce-Smith, 110 Rosemead Road, Hornsby, NSW 2077.

AR



## TRY THIS

# VOX IN A BOX

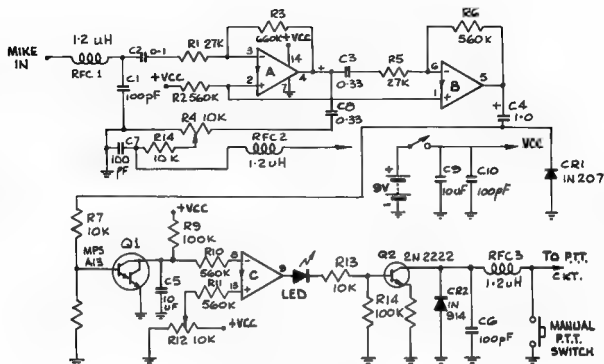
by Joe K5JB

Did you ever think it would be neat to have a VOX, or voice operated switch, to connect between a headset mounted microphone and a rig to permit hands free operation; specially if it was self contained? Well, I did, and here it is. The ultimate goal was to have it packaged in a small box with self contained power supply that could be clipped on the belt. It could then be plugged into a talkie and hands free operation, at least for short range operation, would be possible on 2 m FM.

Unfortunately, the ultimate goal has not been met yet because I am still looking for a cute little box to put it in. The circuit design is complete enough to tell you, 'cause I couldn't wait.

Three sections of the LM 3900 are used to construct the VOX. Earlier attempts to do it with a mini-dip package containing two op-amps failed because there was insufficient gain available in one op-amp to get a workable switching voltage with the microphone used. Sections A and B, shown in Figure 1 are cascaded amplifiers with a total gain of over 400. The voltage from stage A is sufficient to drive the microphone circuit on nearly any transmitter. The 10 K pot allows for level setting. The output of section B is over 2 volts RMS when the microphone is whistled up. If output of stage A is insufficient to drive the transmitter, connect the 10 K pot and .33 uF capacitor to pin 5 of the op-amp.

The output of section B is rectified by CR1, a germanium diode, and C4 is sufficiently charged, during the first few voice sounds, to put the Darlington, Q1, into conduction. C5 is discharged to near ground potential by Q1 and this voltage is compared to a reference voltage by section C of the LM 3900. If the current flowing in pin 8, the inverting input of the op-amp, is less than the amount of current flowing in pin 13, the output



AB & C SECTIONS OF  
LM 3900 OP.AMP

Figure 1. VOX circuit.

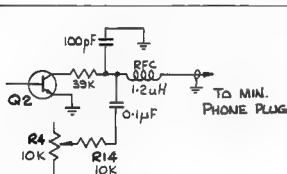


Figure 2. IC-2A interface.

voltage swings to the upper supply rail. Current then flows through the LED to transistor Q2 which switches the PTT circuit to ground.

When speech pauses, the AC voltage at output of section B drops below that required to keep Q1 in conduction. C5 is charged by R9 and when the voltage rises to the value set by R12, the output of section C goes low. The LED was added to the circuit driving Q2 for two purposes. It obviously provided a visual indication of VOX operation, but, it causes a little over a volt of dead band operation so if the output of section C does not go completely to ground, Q2 won't act leaky.

With the high amplification present, there are potentially serious problems with RF if the circuit is not well shielded or bypassed. Since my intention is to use it in a little box clipped to my belt, I added RFC 1, 2 and 3 and C1, C6, and C7 to keep RF out of the circuit. Since the circuit is battery powered, there is no special RF filtering in the power leads but if external power is to be used, BEWARE!

The microphone I am using has about 3000 ohms impedance. Most microphones should work OK with this circuit. If sensitivity is too high, R1 or R5 can be increased in value to get the desired sensitivity. R12, the hold time adjustment, was added because I was unsure how long I would want it to be so I thought it best to leave an adjustment that can be added.

The connection to the rig depends on the microphone audio circuit used in the rig. In most cases, the connection is direct, as shown in Figure 1. RFC 2 is connected to microphone hot. RFC 3 is connected to the PTT line and the grounds are connected. The Icom IC-2A has PTT incorporated in the mike audio circuit so these functions had to be separated as shown in figure 2. Transistor Q2 and pot R4 from figure 1 are reproduced in figure 2 to show alterations that allow connection to the IC-2A. The 39K resistor permits sufficient current to flow from the IC-2A to key the rig. The .1 uF capacitor couples the audio from the amplifier to the mike audio circuit.

In haste to start typing, I forgot to measure the current flow when powered by a 9 volt battery. On 10 volts it draws 5 mA in standby, rising to 6 mA when tripped, a bit of a current hog, I would say, but I guess it will do. Now to go find that box.

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"Collector & Fritter" June 1981

Lot 44, Glenburn Street, Newcombe Geelong, V c 3219

## EVENT COUNTER

Figure 1 — Calculator Modification

This device was built in two sections. One the programming section (fig 3), a flat top box with a cable and octal plug. The other the EPROM and power supply (figs 2 and 4). Viewed from the side the case is 40 mm

## POWER SUPPLY

## EPROM COLUMN PROGRAMMER

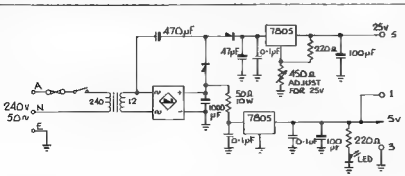
## PROGRAMMER OPERATION

To enter a MARK operate that button  
Upon its release IC6 starts, advancing the  
EPROM address one location the event  
counter and piezo oscillator operate, leaving  
the vacated data line at LOGIC ONE

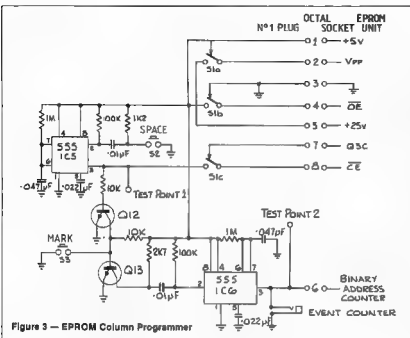
If any mistakes are made with the data entered, they must remain, either to be decoded to another character or the entire EPROM memory erased with suitable  $\sim V$  light and programmed again.

### EPROM SECTION OPERATION

See figure 4. When power is turned on Q1 rests the binary counter IC1. Q4 switches on and all other transistors are in the off state. The EPROM IC2 is in the standby state with a HIGH at  $\overline{CE}$ .



**Figure 2 — Power Supply**



## PROGRAMME MODE

Operating the programmer switch S1 places the EPROM in the PROGRAMME mode ie Vpp 25V CE to IC5 and OE 5V which triggers the following actions. Q5 holds Q2 off, Q6 disables IC4. Q7 places a ONE on all data lines, Q8 disables IC4 and places a zero on the selected data column, Q9 prepares the clocking circuit and Q10 the piezo oscillator circuit.

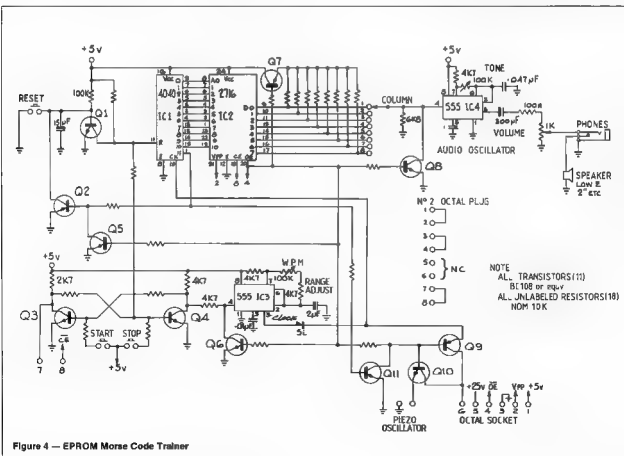
## MARK

Operating the mark button causes a clocking pulse to go via Q8 to shift the address and Q10 to give an audible signal. As CE remains at zero the EPROM internal ONE remains to form the MARK.

## SPACE

Operating the space button produces the first 50 ms pulse which goes to CE and burns out the built ONE, producing a zero to form the space.

The clocking pulse from IC6 then shifts the address location and operates the event counter and audible signal. When the final address has been programmed the binary counter output Q11 goes to a ONE. Q2 is already held off. Q11 turns on and so does Q9 and Q10. Clocking pulses are now prevented from passing to the binary counter and the lack of an audible signal tells you that





## Some More Adventures of Bill Blitheringtwit

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the column is full up. The event counter will still register, however this is of no further consequence

### READ MODE

With the programmer switch S1 as shown in figure 3 or No 2 octal plug in place, the EPROM is standing by and drawing low current. Operating the start button turns on Q3 placing a zero or CE. Q4 turns off and the clock IC3 starts, operating the binary counter. As the EPROM address is scanned the output of the selected column operates the audio oscillator IC4 thus producing the programmed Morse Code.

Operating the stop button during a read operation will change the state of Q3 and Q4, the clock stops and the EPROM is standing by. When the start button is again operated the code starts from where it was interrupted. After the final address has been reached the binary counter output Q11 goes to ONE, Q2 operates the reset circuit, IC1 resets, Q3 and Q4 change state and the EPROM goes to standby.

The reset button was provided to allow restarting during a read operation.

### COLUMN PROGRAMMING

Each column of the 2716 EPROM has 2048 bits or memories where the dots and dashes of the Morse code are placed. A dot uses one bit, a dash three bits. Character spacing one bit, letter spacing three bits and word spacing seven bits.

At first a chart of the alphabet and numerals was made on paper with horizontal and vertical lines, each square representing one bit. The vertical columns were numbered and the bits consumed by each dit-dah combination were recorded at the end of the line.

It was found that one column of the EPROM would hold the alphabet and numerals three times plus CT and AR using variable letter spacing of 9, 9, 6 repeated. This was considered suitable for learning purposes and was used on the first two columns.

The first column was made with each character repeated three times first the alphabet then the numerals all in sequence. The second column was jumbled alphabet then numerals. The third column mixed letters and figures with a spacing of three. After this mixed groups of five with normal spacing (3 and 7). Several columns were held in reserve for future use.

To make programming easy each column was written out on paper in the form of sizable DOTS and DASHES one character per line with a fine point felt marker, and then programmed into the EPROM. For example, for the letters CT one might think or say while operating the buttons, MARK MARK MARK SPACE MARK SPACE MARK MARK MARK SPACE MARK SPACE MARK MARK MARK SPACE 7 times MARK SPACE MARK MARK MARK.

Some practice is recommended before commencing actual programming using an audio monitor connected to test point 2 of fig 3.

Since completing this project in October 1982 I have found it a most helpful, enjoyable and a convenient method of keeping up with code practice.

### BILL GOES SHOOTING

At about 2 o'clock on a somewhat wild and blustery night Bill Blitheringtwit's steel pole, supporting the remains of his now defunct Slim Jim, suddenly fell down, bringing with it most of his wife's clothes hoist. Bill didn't discover this until he ambled out into his yard the following morning to see if his antennas were still up. He found that at least one of them wasn't.

Whilst staring generally skywards he observed several fat and happy pigeons sitting upon the feed point of his corroded copper wire dipole. They were perched contentedly around the casing of his homemade balun and quite obviously intending to spend the rest of the day there, occasionally dropping friendly messages upon the roof tiles.

Forgetting about the ruins of the clothes hoist for a moment, Bill hurried into his garage and thrashed about looking for his air rifle and some ammunition. He found what he wanted and loaded up. He prided himself on being a good shot and aimed carefully in the direction of the innocent and unsuspecting birds.

He was in fact a good shot. Unfortunately, the weather degraded plastic casing of the balun flew into several pieces as the lead pellet struck it and the pigeons shuffled about, but stayed where they were. Bill fired off another couple of rounds, thus effectively destroying the balun but not even disturbing the feathers of the pigeons, who merely shifted their footing and cooed a bit.

Now he has no antenna at all. Slim Jim was a wreck, not to mention the clothes hoist. First things first. He decided to put up another dipole.

Two hours frantic searching amongst his deeply piled junk failed to reveal any suitable wire, apart from a reel of old fabric covered lighting flex. This would do. Out came a tape measure (stolen from his wife's sewing box) and pretty soon Bill had chopped two suitable lengths.

Now to get the old dipole down. Lucky he had put up a pulley and rope. No need to climb. He undid the rope, but the pulley was rusted up and the tattered remains of the dipole refused to come down. He tugged and the pigeons flew indignantly away. He tugged harder and the complete pulley came off the pole and plunged straight through the fibreglass roof of the outside verandah. The pole wobbled and started to develop a decided lean.

Bill's wife came out of the house just in time to see the pole fall slowly over and demolish the TV antenna.

Without saying a word, she returned to the house, followed by Bill, who was just about ready for breakfast anyway.

### BILL AND THE SLIM JIM

It was certainly a beautiful day. Not a cloud in the sky or a breath of wind. In fact, a perfect day to be outside and messing about with antennas. Bill Blitheringtwit, having consumed his daily breakfast of Weetees and toast, was in the jungle he called his garden and holding on to the end of a 24 ft steel pole, wondering how he could stand it upright without causing too much harm.

He had made up his Slim Jim out of TV ribbon and a piece of plumber's plastic pipe and wanted to get it in the air and activate a few repeaters. Despite a lengthy search in the covered in rubbish dump he referred to as his garage, he was unable to find any suitable clamps to secure the antenna to the mast. So he decided to snip off a bit of fencing wire from the back fence. This would do, he thought.

As he snipped, there was a loud crash and, peering through the fence, he observed that a piece of timber, which the wire had been holding up, had fallen down squarely on to his back neighbour's back bath, cleanly dividing it in two and a most deprecating a very surprised pigeon.

Nevertheless, he pressed on and bound the plumber's pipe to the steel pole, afterwards fixing the somewhat tattered coax. This he had found in his junk box. He didn't bother to protect anything with sealant — couldn't find it anyway.

Now he was ready. He wedged the far end of his pole under a rose bush — more like a bramble really — for purchase and started to walk the pole upright. The pole dug in and excavated the rose bush, which fell over. The pole continued on, rather like a plough, removing several other plants on the way and then neatly punctured the asbestos cement sheeting of his wife's laundry extension. Bill continued pushing and the sharp end of the pole then severed the power cord of a recently acquired washing machine which was working at the time. There was a flash and a bang and then silence.

An altercation with his wife interrupted Bill's destructive course at this stage but eventually he was able to get the pole upright, where the plumber's pipe strapped on the end wavered dangerously. He climbed into his shack and keyed up one of the repeaters, or so he thought.

His antenna didn't work at all. He scratched his head and tried everything. Of course, he didn't realise that you don't use grey plumber's pipe to make Slim Jim's.

Instead he rang his mate and told him there was something wrong with all the repeaters. None of the rotten things were working!

# A TRIBAND CUBICAL QUAD

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Quad antennas are renowned amongst amateurs as effective DX antennas due to their low angle of radiation. The closed loops mean a quad is quieter than open-ended beams.

There are many ways to build a quad but the method described here is simple, effective, requires only one feedline and does not require tuning. I claim no originality for the design which is by W2AU and has been described in the ARRL Handbook. It has been in use at VK8PH until recent y, for about two years.

Spider hubs were obtained from Sclar Industries for about \$30 per pair and the tuning coils are available from W. am Willis & Co for \$2.60 each. Alternative materials for the hubs could be used but the Sclar units are recommended due to their strength and durability.

The spreaders were made from 1.5 m lengths of aluminium tube into which is inserted 4 m lengths of PVC water pipe. To give it strength and rigidity, identical lengths of dowel are inserted into the water pipe and fastened by suitable self-tapping screws through the aluminium tube. See Figure 3. The construction is strong but flexible and has survived cyclone 'Max' in March, 1981!

Wire for the elements is No 14 soft-drawn copper wire and is threaded through holes drilled through the spreaders at the distances shown in Figure 1. The reflector is pre-tuned by counting the number of turns and soldering to pigtails as shown in Figure 2.

To prevent rain entering the open ends of the boom, it is advisable to seal the ends by means of a plug fashioned from a piece of 50 mm square timber or similar material.

A low SWR was obtained on all bands and expected forward gain is in the region of 7.3 dBd. At a total cost of around \$65 for all new components it must be one of the cheapest DX beams around.

AR

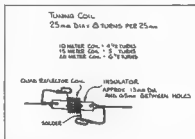
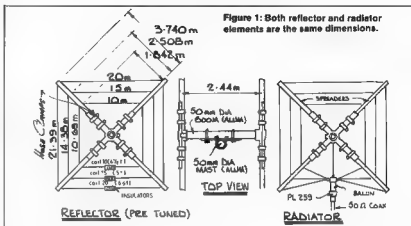


Figure 2: Count the number of turns and solder as shown. The turns are held rigid by the form.

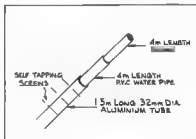


Figure 3: Spreader detail.

## MURPHY

Alan Shawsmith, VK4SS  
35 Whynot Street, West End, Qld 4101

Every amateur living, at one time or another, has toiled manfully against the wiles of MURPHY. Some never seem to be rid of him right up to the time they become SKs (God rest their poor tormented souls). As all will agree he's a form dable opponent!

Have often wondered how this unwelcome spoiler came by the name MURPHY — well, at last and quite by chance, I happened on the answer. DX squire these days, so I was idling away an hour reading a history of Ireland, curious I was to find out just why so many of these witty and charming people, bred on such a beautiful sea would choose a life of violence and strife rather than one of co-operation and peace (An 'all green' bucks party is a perfect example of this). Suddenly I came upon a reference to the exploits of Murphy's ancestors — or one forebear in particular — so, let me explain.

First of all it should be known that the Murphy coat of arms carries the outline of three lions. This symbolises, among other things, a great capacity and prowess for

destruction — and who of us would disagree, having seen Murphy at his worst or best? But why lions you may well ask? Well, it seems that Ireland was originally populated by successive groups of genetic misfits (the author's inference, not mine) from countries along the Mediterranean, who simply found it impossible to live peacefully with anyone and were consequently deported. (It would appear that the first Irishman was a Greek and Murphy was an Arab.)

They were thrown out of Egypt, Spain, Greece, Scythia etc. These tribes or groups headed west (come to think of it, there was no other direction to go), past southern England where it was reported the men were blue-skinned (but not from the cold) and settled in Ireland which was the last stop before falling off the edge of the world. As the place was uninhabited, they could resort to their favourite pastimes of killing, spoiling and indulging in a drop of grape at the drop of a hat — all of which they did in fine style!

Murphy's ancestors were part of the NIUL

clan, who may have worked along the river Nile as they had boats. They proved to be such a 'nit-picking' aggressive lot, that after a disagreement with one of the Pharaohs (circa Ramesses II), they too were deported. They headed in the same general direction as those before, ie westward, fighting all along the way with anyone they could find. One tiresome day, a clan member named Murphy (but probably spelt Mur-fe or Mur-fi), bored to death with lack of action, went ashore on the African mainland just to stir things up a bit. And busy he was, like a waiter at an Irish Club on St Patrick's Day. Legend has it that by nightfall he had slain three lions in one-to-one combat.

This same gentleman eventually made it to the Land of the Shamrocks where it is claimed all those by the name of Murphy are directly descended from him. Hence the lions on Murphy's coat of arms and the genetic inclination to spoil and destroy. So, now you know and if you don't believe it read the book, "ARE YOU IRISH OR NORMAL" by Sean O'Grada (Note the author's lineage to a Mediterranean race).

AR

# Operating Techniques and Hazards

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First delivered at Redcliffe Radio Club,  
March 8, 1982

Revised version at WIAQ General Meeting,  
Brisbane, March 19, 1982

## TECHNIQUES

Listen on and around the frequency you wish to use.

Start tuning up your transceiver, BUT DON'T TUNE UP "ON FREQUENCY".

If you insist tuning up your transceiver "live on air" try to find an "official" intruder near the frequency you wish to use;

But . . . you'll be a much better operator and not liable for prosecution due to causing harmful interference . . . If you tune your equipment without causing all this trouble.

## HERE IS A SUGGESTED METHOD.

1. Tune your transceiver on the required frequency USING A DUMMY LOAD (dummies are good for something).
2. If your antenna has an impedance of around 50 ohms and is tuned, you then connect the transceiver direct to the antenna and any fine tuning is done while you transmit. A pre-recorded tape containing your call followed by "TEST" would be ideal for a short fine tune up, especially if the tape is recorded at a speed of, say, 70 words a minute.
3. If you have to use an ATU, try to remember the settings you used on a previous occasion. For tuning, preferably use CW identification, at least you are doing a test, although the regulations state that you may use a continuous tone for not longer than 30 seconds. Some tune signals appear to last for hours on end.  
By rights, an ATU should only be used if your antenna is not resonant for the frequency you wish to use, e.g., using an 80m d pole for 20m. Using an ATU with a beam is not exactly recommended and it only illustrates ONE POINT . . . you didn't resonate the beam on the centre frequency of your favourite section (S) of the band. And you'll be surprised to find out how many amateurs either inadvertently or on purpose keep the ATU in circuit if they switch from a non-resonant antenna to the beam.

## AND HERE IS A SUPER HINT

If you insist on using an ATU because you have only a piece of wet string and want to save yourself a lot of time and irate flack . . . proceed as follows:—

On a quiet day, that is, if the band is dead or non-active, go through your frequencies, say, 3550, 3560, 3570, 3580, etc., tune up for each frequency and NOTE all the required settings on

your set AND the ATU. Do the same for the other bands . . . and you will not be far out when you change bands in a hurry, any fine tuning to be done while you speak or play that super fast CW tape

## AND THIS IS THE SUPER DUPER HINT OF THEM ALL:—

Grab your March 1982 Issue of "Amateur Radio" and read the article on tuning up for the visually handicapped amateur. It shows the proper way of tuning your system WITHOUT CAUSING INTERFERENCE TO OTHERS, AND YOU'LL BE SPOT ON. Try it and I promise you that you'll use it forever.

## PROCEDURES

**WARNING:** The discussion on "PROCEDURES" and "HOW TO HANDLE A SITUATION" may cause discomfort to some amateurs. The recommended rating for these two sections is "M" (for mature).

If the equipment is tuned up to specifications, then:—

1. Listen first on the frequency for any other user.
2. If no one "APPEARS" to be using the frequency, ask: "IS THIS FREQUENCY IN USE?", followed by YOUR CALL SIGN Now . . . here is a catch . . . If someone does come back and tells you "Sorry OM, but this frequency is reserved for the Billabong net, starting at X hours", please ask him/her for the address to write to, so that you too can reserve a frequency. The answer may stagger you!!!!
3. If no one does answer your "Is this frequency in use?" call, go ahead and use the frequency, although a word of warning, it appears that some VK areas are very deaf and will suddenly come on your frequency during a QSO and conduct their own. No solution has been found yet for this deafness problem.
4. When calling "CQ", please identify yourself a number of times "PHONETICALLY" so that others may hear your call sign correctly through static or local interference.
5. During a QSO, make it a habit to use phonetics at least ONCE per two or three overs. Others may wish to join you but, due to heavy static or interference, are not sure of your call sign, especially if the call is given "as she is spoken mate".
6. Regulations state that station identifications must be given at every ten minutes, thus in a rag-chew conversation, over use of call signs between overs may seem somewhat superfluous. The word "over" to indi-

cate that you hand the mike over is recommended practice.

7. AND HERE IS A VERY IMPORTANT PLEA. Make it a HABIT, before commencing your over, to listen very briefly—no longer than, say, two seconds—for any possible station wishing to break in . . . It could be an emergency call. This happened to me a few years ago when, during a local net, a Cairns station called in—rather weak—to check propagation at that time into the Brisbane area during an approaching cyclone—SES in Brisbane could not be raised at that time. So it is worthwhile to acquire the habit of listening briefly in between overs.
8. Do not swear or use obnoxious words and/or expressions during your transmission.
9. When participating in a net, or wishing to join one, listen very carefully how it is run. Some nets require a return to net control after each over, others require that you pass the net over to the next in line. Whatever the system, always jot down the call signs of the net in the order as given by net control. A good controller will give the updated order every so often.
10. When using the telephony mode, try to avoid using some of the following Morse code abbreviations:—  
"Handle", use instead "My name is".  
"QTH", use instead "My location is".  
"QRX", use instead "Interference from another station".  
"QRN", use instead "Noise or static".  
"Hi", use instead your own belly laughter.  
All this makes your conversation much more natural and enjoyable.  
**EXCEPTIONS TO THE ABOVE** (with out them we would be lost)—  
When contacting an overseas station who conducts a QSO by reading from a sheet of paper, like I once did when speaking to an Italian station. Never again.
11. When contacting an English speaking overseas station, speak rather slowly and distinctly, especially when it is your first contact . . . and why should you do this???? First of all it is more than likely that they have severe interference from other local stations and, secondly, the Aussie language as she is spoken is world renowned for its slurr and pronunciation. You will get a lot more DX if those stations far away get to hear that VK4 such and such speaks understandable English.  
And now over to "HOW TO HANDLE A SITUATION" rated "M" (mature audience only), but could also be rated "X" (extreme caution).



## HOW TO HANDLE SITUATION

### 1. WHERE THE OTHER'S TRANSMISSION SOUNDS AWFUL.—

Tell him outright that he's got a problem somewhere and stay on frequency if an attempt is made to try and rectify the problem. It is often amazing to find out how many listeners there are who suddenly pop up with all sorts of interesting advice. You could learn a great deal yourself, too.

### 2. WHERE ANOTHER STATION CAUSES UNDUE SPLATTER —

Tell the station that his transmission appears to cause extreme splatter . . . and be ready to be abused . . . thank him for his remarks and try to find another splatter-free frequency. If at some other time you hear the same station with the same amount of splatter, check in and ask him what troubles he has with his transmitter, as there appears still to be a large amount of splatter. If he is still abusive, act as described in the following section.

### 3. WHERE A STATION USES OBSCENE AND/OR OBNOXIOUS LANGUAGE DURING A CONVERSATION WITH YOU—

- Listen (and tape record, if possible).
- Ask him to repeat the message as you had extreme interference.
- If he repeats his "typical language" don't come back.
- If a particular station is known for his use of this type of language, try to organize a group of fellow amateurs to join "sequentially", that is, as soon as you "don't come back", number two takes up and tries to make a conversation. If the person still continues to use his own lingo, number two falls out and number three comes in. Only a person with an elephant's hide will persist.
- If the person persists in using his lingo and all efforts have failed, each member of the group must write to the secretary of the Amateur Advisory Committee in your State, giving call sign, name (if available), time, frequency, type of language (preferably illustrated with tape recordings) and whoever else was on frequency as witness.

This is NOT DOBBING SOMEONE IN, it is part of self-policing your privileges. You could tell the person to stop using the language, but in nine out of ten times you'll get more abuse. I hate to say this, but in the past when CB was new some CB groups did some self-policing and for a while did clean up the frequency, at least in their own locality.

(f) The Amateur Advisory Committee is a liaison committee between amateurs and the Department, consisting of some eight to ten persons, of which at least three shall be non-WIA members, thus representing the non-member amateurs. Meetings are held every second month and observed or reported misdemeanors discussed. If a report warrants it, the offending station is cautioned by the committee (no further action is implied at this time). If the same station is reported for the second time, the person is informed that the matter has been referred to the Department for further action.

This committee is often accused of "not doing anything". It can't be expected to patrol the frequencies 24 hours a day just listening for any offences. If they hear one, sure that will be discussed and action taken. But if a complaint is received from someone else, then at least the committee can monitor that particular frequency at the approximate time. If one does not know of an offence, how can one take action???

### (g) WHAT IS OBSCENE OR OBNOXIOUS?

This is at times a personal matter, but normally swear words and specific four, five or six letter words are a big no, no. Bloody, damn or worse may be accepted in some sections of the community, but they are offensive to a much larger audience. If a person uses the word blooming or darn, at least he is trying to express himself "forcefully" without offending others.

**OBNOXIOUS:** Liable to harm or evil or attack; offensive, objectionable, disliked.

**OBSCENE.**

- Repulsive, filthy, loathsome.
  - Grossly indecent, lewd.
- The Concise Oxford Dictionary.

## \* \* \* \* \*

### TUNE-UP SUGGESTIONS

The simplest method without too much interference. Initial tune-up with dummy load, then fine tune while speaking or sending CW.

Initial tune-up with dummy load. When connected through ATU to non-resonant antenna, try to remember previous ATU setting and do fine tuning then, when speaking or sending CW.

This is the main Non-Interference Method. Initial Tx setting with dummy load. Switch in antenna scope and set same for 50 ohms. Tune ATU for Minimum Audible (and visible) Dip. Fine tune Rx and retune ATU. You are now so close to proper tuning, it isn't funny. Remember: do not transmit while A/Scope is in circuit and prevent RF from coming into the scope at all. It takes some experience to get this set-up going, but once it goes, you'll never ever tune-up on air.

## WHAT TO DO WITH PIRATES

UNDER NO CIRCUMSTANCES TAKE IT UPON YOURSELF TO TELL THEM TO GET OFF THE FREQUENCY BECAUSE:—

- Are they really pirates?
- Who gave you the authority?
- You breach the regulations by interfering with another signal.

### ACTIONS —

- Take note of the frequency, name and tape record if possible
- Do not answer a call from a suspected pirate.
- If it turns out that you work a pirate, TERMINATE QSO
- Inform the Department immediately of the circumstances and include a details. They will answer you.
- Success rate is becoming more positive.
- Forget about overseas pirates, you have no way of knowing whether or not they are pirates, and if you know that they are pirates, ignore them and don't answer. However, you should report them to DOC, who will then take up the matter with the relevant administrators.

That concludes "Operation Techniques and Hazards". If you play the game, the game will treat you as a friend. If not, WATCH IT, MATE. ■

:: ::

Tactful Person: One who comes to your house and makes you feel at home.

:: ::

## SCROGGIE

From "Break-In" January-February 1982

Radio Classes are starting soon

So we'll start our study this afternoon.

Out came "Scroggie"—that veritable sage  
And we struggled on through page after page

First came "Ohms" and he's drafted aw  
With Es, Is and Rs till my brain's quite sore.

Then came PI — no, not one to eat,  
The formula for power has near got me beat

My RESISTANCE is low — my CAPACITANCE too,  
I'll be INDUCED to learn, for his REACTANCE is true

"You do know the answer. You must do —  
You've read it!"

If that circuit's resonant, I've yet to get it  
With Farads and Henries, and ohms by the score

And Gigas and Megs and Kilo — For sure.

I'll not remember the mills and micros and puffs

That drop past my circuits when I swot the stuff

If I ever make it — to elusive Grade three

Then comes that CW — OH! WOE IS ME!!!

Anon., Branch 42 ■

# IDEAS ON SIEMENS SERIES ONE PRINTERS

Dave Prince VK4KDP  
South East Queens and Teletype Group

**It is probable that most machines will be received without a line socket to match the connector on the rear of the machine. Because of this, some re-wiring is necessary.**

A feature of these machines is an auto-start switch termed the TIME DELAY MOTOR SWITCH. If a steady mark signal is received for more than about forty seconds the motor and printer will shut down. Upon receiving a space signal the printer will start up again. When shut down the printer may be manually started by pressing the LETTERS key. If an auto-start is available on the demodulator circuit board, this time delay motor switch may be replaced by a relay controlled by the Demodulator board.

These machines are fitted on the right hand side with a power transformer to power the 6 volt copy light. Two spare windings are also available on this transformer. One is 15 V and the other 60 V. The 60 V winding can be utilised to supply the loop, which consists of 50 volt at 40 mA maximum is required to operate the printer.

If it is planned to make use of this transformer for the loop, the primary winding will have to be reconnected on the supply side of the time delay motor switch (or relay if fitted) so that the loop current is maintained even if the motor has turned off.

Below are some ideas on connecting the MAINS WIRING, (assuming the transformer is required for the loop supply). One way is to remove the following wires from the rear connector and terminate them along with a three core lead to a four terminal barrier strip attached in a convenient place. The power lead can be bought out through the gap in the printer cover above the connector. To assist in rewiring remove the printer base plate by removing four hex head

bolts. Underneath the plate, will be seen, a series of terminal strips.

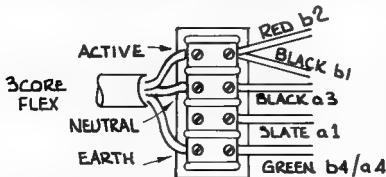
Remove the strap between terminals 2 and 3 and replace this between terminals 3 and 4. Now to the rear connector. Remove RED wire from pin b2, BLACK from pin b1, BLACK from a3, SLATE from a1 and GREEN from b4/a4. Reconnect these to the barrier strip as below.

Another way to wire the mains is to completely remove the abovementioned wires between the connector and the terminal strips under the base plate. The three core flex is then terminated on these strips. Again remove the strap between terminals 2 and 3 and replace between terminals 3 and 4. Place another strap (insulated) between terminals 2 and 5. The ACTIVE of the power cords is connected to either terminals 2 or 5, the NEUTRAL to terminal 1 and the EARTH to the earth termination on the printer chassis.

If the time delay motor switch is to be replaced by a relay, the switch wires are terminated on terminals 4 and 5. These wires will have to be replaced with the relay contact wires. As can be seen on the circuit diagram, the original line connector socket also contained links to series up the printer receiver, keyboard and tape transmitter. These links will have to be wired in either the connector or across the terminal strips. Two series of connections are shown below, the A & B pin numbers denoting connector pins (and the terminal numbers denoting the terminal strips).

LINK b11 to b12 (term 18 to term 22)

LINK a12 to a13 (term 21 to term 19)



If an ohmmeter is placed across a11 and b13 (term 17 & 20) a reading of approx 310 ohms should be noted if the machine has a keyboard and tape transmitter fitted. If no tape transmitter is fitted a resistance of about 225 ohms will be measured.

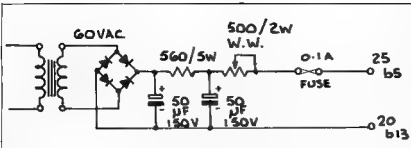
I built the following loop supply, the bridge rectifier and the dropping resistor attached to a tag strip screwed to the top of the transformer. The capacitors attached to the printer frame next to the motor, and the preset pot and fuse fitted into the transformer cover. The positive lead was terminated on spare terminal 25 (or connector pin b5), the negative lead to terminal 20 (or connector pin b13). The loop cables from the demodulator are then terminated on terminals 25+ and 17- (connector pins b5+ and a1-).

The preset pot allows setting the loop current to 40 mA. When the printer is connected to the terminal unit (demodulator/modulator) if the South East Queensland Teletype Group demodulator board is to be used resistors R59 and R58 will have to be changed to 120 ohms and 150 ohms respectively on that board.

A local loop can be set up on the printer temporarily by connecting a 270 ohm 1 watt resistor between terminals 25 and 17 (connector pins b5 and a1).

The next step is to put the motor on speed for 45.45 baud. I was fortunate enough to have a model 14 TD on 45.45 baud and played a test tape through the TD connected to the Siemens teleprinter and adjusted the motor governor until I was printing perfect copy. Once the terminal unit is connected the same trial and error adjustment of the governor can be done while receiving signals from 2 metros FM.

Adjustment of the governor must be done carefully. Remove the governor drum from the motor by undoing two screws on the outer end of the drum. The adjustment screw can then be seen at right angles to the shaft. (To line up with hole in side of drum). The screw will be seen to pass through what is essentially a horse shoe shaped piece of metal being threaded in both legs. During assembly the two legs are squeezed together while the screw is screwed in. When released the legs tend to spring apart and tend to jam the threads thus stopping the screw from vibrating loose. The adjustment should be done with the drum in place being careful not to



screw the screw out of the horse shoe legs To reduce the speed from 50 baud, turn anti-clockwise. It does not appear at this stage that the number of turns required is the same for all machines. I had to unscrew mine 3½ turns. At 4 turns the screw came out of the horse shoe leg. BE CAREFUL.

It is not my intention that machines should be modified exactly as I have done with mine. These notes are only a guide. The experimenting is up to you. We would be pleased to hear of your 'modifications'.

AR

## PIONEERS OF THE SPECTRUM

### Part 1: THE DISCOVERY OF VHF

Stephen Gard VK2ESG  
Amateur Historian



*Few know, and fewer will admit, that much early experimentation, discovery and suffering in the cause of radio, was undertaken by diminutive Ukrainian peasant boys. Sitting alone, late into the afternoon, working by a guttering yak-fat candle, careworn and frail from cruel labour in the galena extraction plants, thin slips of lads would make the most stupendous advances in the science of electromagnetic propagation, before toppling from their orange crates to sleep, shivering, on a frozen stone floor. In this article, we salute one of the bravest and coldest of these goose-pimpled pioneers, A C Veeyacheff.*

Little Alexi Veeyacheff was born in 18-- in the town of T-----. His m----- and f----- were honest but poor, and tiny Alexi had to go out to work at the age of two.

The young Veeyacheff, however, was already rabid with the Raddow Craze, winding his own coils of wolf-hair on re ndeer-shin, and wrenching the whiskers from stray tabbies in order to hear the lurid day-time serials which slick Latvian marketing beamed over the borders.

Alexi spent much time fussing with the early cast-iron, pot-bellied valves, trying to discover "Veeyacheff transmission", as he shyly called it. The icy white nights were pierced with his shrill screams as his minuscule body became electrified. His thinning hair stood on edge; his face, scarred by radiation burns, twitched with concentration and an excess of amperes, but with every tremble of his scorched fingertips, the secret seemed to slip further from his grasp.

One day, when Alexi was four, his f----- presented him with a fine communications receiver, a magnificent instrument fitted with a new Western discovery, the Knob. Alexi was undeterred, since the set required a supply in excess of the

local 7.4 VDC mains (on bad days in the town of T-----, electrons froze in the wire) but he hooked it up to his battery of borscht and bicarbonate accumulators and was soon delightedly listening to the Woodpecker. In those days, the Woodpecker was much fiercer, and had a bandwidth of some 18 Megalexis, but whatever was drifting about in the HF, MF, LF and BLF bands, the young Veeyacheff managed to hear it. He experimented with antennas, using sections of railway track, RSJ and angle iron, but found them inefficient on the F Layer and on the Heavieside. He tried several elements spaced along a boom, and cried "Array — I've found it!", but his best results were achieved using a centre-fed wire inside a steel cage (now known as a Trapped Dipole).

Yet always at the back of his microscopic mind was the question, "What is beyond the edge of the dial?" Bravery he ignored the scoffing of critics, when he ventured an opinion to the boys breasting the counter at the local Trncksky Dicksky.

"Little radish-brain," they would laugh rudely, "beyond the edge of the known spectrum there be dragons and such-like!"

"Imagine transmitting at anything higher than 30,000 kilovodkas! You'd never get out of your own republic!" belched one.

"Just watch your stepspe," grunted another.

"Obiasit," muttered Alexi, determinedly.

That night, taking his courage in his hands, and a pair of stilsons, Alexi began to force the Knob on his receiver further to the right than he had ever dared.

What a lonely road is Discovery! The empty chatter of the 80 metre nets slipped behind him, the vicious snapping curs in the dogpiles on 20 metres, the Breakers and Thassa Big Four fraternity on 11 metres — on, on ever onward and upward. We are fortunate enough to possess a notebook, and some of his intense excitement can still be caught from the crabbed and crinkly Cyrillic characters who drink at the Saturated Octode.

"An unearthly crackle... a stellar hiss... here will be a good site for six-metre EMI! what is this, that breaks so sweetly on mine ear? I shall call it 'overdeviation'! Both can be heard on the uplink, yet do they use a repeater! Beep away! Clearly, the doctor is playing golf. Police! Fire! Ambulance! Tow truck drivers!"

Little Alexi's hysteria is infectious, and people are still scanning, but he was the world's first Radio Frequency Voyeur, and RFVs everywhere should be upstanding for 16 k of silence in memory of he who gave his life (he was never heard from again) and his name to the exciting VHF band, that men and women everywhere might enjoy in peace and prosperity, the advantage of a mob whip short enough not to catch in the branches.

(The next articles will deal with Nikolai Yuacheff and Vladimir Essaycheff, who owned bigger stilsons, and had larger knobs.)

QUM?

■



# HOW'S DX

Ken McLachlan, VK3AH  
Box 39 Mooroolbark, Vic 3138

During the last month much correspondence on varying subjects has arrived in the mail box. A number mentioned QSLing, including the whys and wherefores which have been dealt with previously in this column.

Apparently a lot of VK amateurs are ignorant of the facts a QSL card should contain for the recipient so that it is acceptable for awards and DXCC national countries.

A card for another amateur must confirm a TWO WAY QSO in whichever mode it is issued, otherwise the card is virtually useless for DXCC and other awards.

Until recently, the ARRL unwittingly or otherwise allowed cross mode QSOs (SSB and CW) but this practice has now been cut away and a QSO is only valid for award purposes in the one mode (CW to CW or SSB to SSB etc) and it is the responsibility of all operators to ensure that their card clearly indicates that the QSO was a TWO WAY by applicable mode.

Other information that is required is the date (day, month and year) and time in UTC, frequency in MHz and your report to them in RS(T) and the operator or QSL manager's signature or initials.

It is the duty of a amateur to adhere to this policy, so that all cards are acceptable to any award manager. Let us in VK be beyond reproach in this regard with cards leaving our shores.

## KURE ISLAND

A new amateur on the island for the next few months is N2EDQ/KH7 who will be active on SSB and CW. A QSL to KH6JEB.

## NO QSL BUREAU

According to Long Skip, the following countries have no QSL Bureau for distributing or collecting cards:

A5, A6, A7, BV, CS, C9, D6, HZ, J5, S9, ST, T2, T3, TJ, TR, TT, TY, TZ, V3, VP2E, VP2K, VP5, VR6, XT, XU, XV, XW, YA, YI, YJ, Z4, ZD9, ZK2, ZM7, 1S, 3C, 3V, 3X, 4W, 5H3, 5J7, 5X, 7O, 9N.

Forty-five countries, some not active, will have to be QSLed by the operators directly or indirect, a costly experience since the increase of postage and a possible increase in IFRs in the near future. The method of "green stamps" is still the cheapest of the few avenues open to the average DXer.

## BAKGLADESH

The attempt by J-11RN2 to activate this much needed area was unsuccessful due to the military administration who will not allow amateur operation. This amateur is also a cardiovascular surgeon in a Decora hospital, as was his predecessor JK1KSL who operated /S2. Another attempt will be made to obtain permission but hopes are not high.

## REPUBLIC OF GUINEA

It is believed that QSLs from 3X4EX dated

the 6th June 1983 and after, will be accepted for DXCC. Contacts prior to this date will not count unfortunately with the ARRL.

## SUNSPOT INDEX DATA

Lee KH6BZF, in his publication KH6BZF REPORTS notes the Sunspot Index Data Centre (SIDC) Observatoire de Belgique, Bruxelles, Belgium reports that the provisional sunspot number (mean) for June 1983 = 90.6 as compared to May which equalled 100.2. The SIDC goes on to report predictions of smoothed monthly sunspot numbers as follows for this month and December as being 74 and 73.

These figures indicate that propagation is unfortunately not going to be good!

## FRENCH POLYNESIA

A note from Ross WB6GFJ/FO0FB who has just returned from French Polynesia gives the QSL status of some of the FO operators.

A new import to the island is Jose FO0JD who used to operate 5TSJD and QSLs for either call may be had by an SAE to Jose Dumoulin, BP 85, Papeete, Tahiti, French Polynesia.

QSL information for other FO/TO calls please refer to the QSL lists.

Ross adds that anyone wishing to take out a FO licence can expect in excess of six months waiting before being able to operate.

One wonders, with the above information, how the two stations FO8BI/P and FO8J/P could be genuine in their claim to be operational from Rapa Island, an island that would become a "new" country.

Rapa Island appears to be located near Tubuai Island, one of the southern areas of French Polynesia and it would not be acceptable to the DXCC scrutineers on current rules.

It succeeded in living up to the quiet DX bands for a while but it is something we could all do without, I am sure.

Jan and Jay O'Brien, who publish the W6GO/K6IHH QSL Manager List will be operational from Moorea as FO0JO and FO0JN in the last two weeks of this month and the first week of December.

There is a possibility that operations will also be on 160 and 30 metres. QSL for Jay FO0JO to W6GO and Jan FO0JO via K6IHH.

## ST KITTS-NEVIS

The Caribbean territory of St Kitts-Nevis ended its sixteen year association with Great Britain on the 16th September. Prefix hunters will be happy as the prefix is likely to change to J9. This action will unfortunately not create a new DXCC country.

St Kitts was discovered by Christopher Columbus in 1493, he named it after his patron saint, but in 1623 the name was shortened to St Kitts by English settlers. The name Nevis was derived from las nieves (the snows). Columbus thought that cloud topped Nevis Peak resembled snow.

## HIGH ACTIVITY

The small principality of Liechtenstein, 6 square miles in area and located between Switzerland and Austria) was the scene of four DXpeditions during the months of September and October.

Those that operated included D.7NS/HB0 QSL to DL7NS, a French group comprising of F6EYS, EQG, HIX and GTC (QSL via F6EYS). Frank HB9NL as HB0NL and Franz D.9ZB hoped to fire up during the CQ Worldwide DX Contest.

## MALDIVES

Due back soon after a holiday in G land is Iain G07BT. Iain will be active on 80 thru ten metres. QSL route is either direct to G07BT, Cable and Wireless, Malé, Republic of Maldives or to G4JMM via the bureau.

## DX IN ASIA

Tom YU2DX was QRV from Kathmandu and Baying earlier this year. Tom was in Nepal with the Yugoslav mountaineering team who were attempting to climb Mt Manaslu, and was in charge of the Kathmandu base station. YU2SO was QRV from the group's base camp some 4050 metres up the mountain.

The Yugoslavian government applied for a 9N1 licence for Tom but were turned down on the curious grounds that amateur radio is not permitted in Nepal. Fortunately a Father Moran 9N1MM came forward to help and invited Tom to set up his equipment at the St Xavier School, 16 kilometres south of Kathmandu, where Tom was able to use Moran's antennas.

The mountaineering expedition ended in tragedy when two of the mountain climbers were killed in an avalanche. Tom was kept busy for a considerable time co-ordinating the search and rescue attempts.

This was not the first time that Father Moran's shack has been used as a communications centre. In 1963 an American Everest expedition, that en route to set up their base camp, encountered a horrible and near fatally burned Nepali lady in one of the villages. They were able to contact the US Embassy in Australia with their transmitter and from there, their call for a helicopter was relayed back to Moran at Godavari. Thanks to the whirly bird, and the men at the microphones, the woman's life was saved.

Instead of returning immediately to Yugoslavia, Tom, who had already received an invitation to operate BY1PK, was given financial support by the Northern CA. former DX Foundation to fly to Beijing for a few days.

In a total of thirteen hours operating, Tom made 1210 contacts including USA-238 JA-243, YU-245, UA-22, OK 27, I 21 F-33, SM-35, VE 19, UA/0-58 DL-75, OH-48, G-6 and VK-0.

Tom, why didn't you turn that antenna he's way for the boys and girls down under?

## W-100-N

Quite a strange heading but it is the title of

**World Radio s Worked 100 Nations award**  
VKs have not missed out on obtaining this  
excei-ent award and some that have achieved it  
and have it proudly displayed in their shack  
include VK8YL, VK6NE, VK2FD, VK3NSY,  
VK2DEJ, VK8AJW and VK2HD  
Congratulations to one and all for their  
interest in an overseas award

**FIRE PREVENTION WEEK**

Those strange calls of ZV2ACZ and  
ZV2ADB emanated from Brazil and were for  
"Fire Prevention Week"  
For QSL cards it might be worth trying PO  
Box 07-0004, Brasilia, DF, 70.000, Brazil

**ALBANIA**

According to numerous reports, Frank  
D-7FT, who has during the last few months,  
been busy getting donations ready for an  
expedit on to Albania, has found that it is not  
a proposition this year  
Frank, it is believed, has returned all money  
donated towards getting Albania on the air  
this year to all the contributors  
None of the money was used and it is not  
clear why Frank and Bahn DJ0UJ cancelled  
their plans, perhaps the true story will come  
out later this year and we may have an  
expedition next year Who knows?

**ICELAND**

A new station on the bands is Ted W3TB/TF  
from the US Naval Station at Keflavik Ted will  
be active during his posting which is for two  
years and QSLs may be had from W3IVG,  
either direct or via the bureau.

**IRAQ**

It is reported that YI1BGD now has five  
operators to man the station and they should  
be more active than they have been The  
operators names are Majid, Kamal, Saad,  
Mohammed and Arshad  
The equipment they use, a Drake C-Line  
and L4B Linear, was donated by JY1 whilst  
the antenna, a tribander came through the  
courtesy of two US DX associations  
This is one area where "green stamps" are  
of no real value and three IRC's are sufficient to  
get a return QSL mailed direct There is no  
bureau in Iraq

**AVES ISLAND**

All indications are that there will be  
an expedition on there next year under the auspices  
of the Radio Club of Venezuela The last  
expedition spent a lot of time working the  
South Pacific and it is to be hoped that the  
trend continues

**SOUTHERN SUDAN**

A club station is now on air from Juba  
University — 6U0JU  
A so the call 6U1WCY is active now and  
of 1983 commemorating WCY83

**JARVIS ISLAND — 5-10 November 1983**

JARVIS ISLAND, Central Pacific Ocean (0°  
22' South Latitude, 160° 1' West Longitude)  
A planned Jarvis Island trip is nearing  
real ity A suitable boat has been located and  
chartered by the expedition group Jarvis  
(KH5) is located about 1200 miles south-  
southwest of Hawaii It is a wildlife refuge  
administered by the US Department of the

Interior. 3.2 km long and 1.6 km wide, Jarvis is  
the home for hermit crabs, feral cats and up to  
15 million nesting sea birds,  
The team of five operators will leave  
Christmas Island, Republic of Kiribati on 3  
November, 1983 and expect to land on Jarvis  
by 5 November, 1983. Operation will be on all  
bands, 10 through 160 metres, with equal  
attention to CW and SSB modes. Three  
stations will operate 24 hours a day during the  
planned five day expedition. Linear amplifiers  
will probably not be used, but beams are  
being shipped via the chartered vessel  
The amateurs will be accompanied by a US  
government biologist, who will study the bird  
population and feral cat activity while radio  
operation is underway.  
Operating frequencies of AD1S/KH5

CW — 25 kHz up band edge, LISTENING  
UP Listen to operator for the correct  
frequency  
SSB — 10 Metres — 28.600 MHz  
15 Metres — 21.300 MHz  
20 Metres — 14.195 MHz  
14.295 MHz  
40 Metres — 7.200 MHz  
80 Metres — 3.795 MHz  
160 Metres — "window"  
LISTENING UP when conditions warrant.  
Listen to operator for correct frequency  
Please do not "spread out" over the entire  
band!  
Operators: George, AD1S, Stuart,  
WAZMOE, Burton, W0RLX and Stuart, H44SH  
(G6VUO)

QSL: Direct to AD1S.

**QSL MANAGERS**

3A2GX I2YAE, 3B8LH DL9AEJ, 3B8ZV N6ZV,  
3B8ZZ W2TK, 3B8CD 3B6CD, 3B9FK 3B6FK,  
3B9ZV N6CV, 3C1JA JAI1FL, 3C2AB W8BMWS,  
3D2BD ZL18D, 3D2DX SM3CX5, 3D2EH K8VR,  
3V8AA IS0LYN, 3X4EX N4CID, 4J1O UK1OAZ,  
4K1A UA3AEL, 4K1B UA6KAZ, 4K1D UA1AFM  
4K1G UA1XJ, 4K1HK UA3AEL, 4K1J UA1AOD,  
4K1QV UA1QAV, 4N4MW YU4LL, 4N4NF YU4LL,  
4N4SA YU4LL, 4N7ARG YU7AJW, 4N9I YU4FER  
4N8WG YU4GYZ, 4N90LY YU4EXA, 4N9YU  
YU4YX, 4STU5 OF2RG, 457AJG K9AJ, 457XSG  
DL7XS, 4771UE EAQCRJ, 6Y5PL G3XSE, 7K5AB  
F6BFH, 7K5AH F6BFH, 9A2BH W6RIA, 9A2HB  
W4WFF, 9A5DL ON5QG, 9V0TL YU1LL, A22MT  
Z56BDL, LA35MD F6ZRG, A82LC SM4CWY,  
C30ALA DL9UV, C30LAL EA3BKZ, CE02AD  
B9WOD, CN8CP DL8OI, CT2FH W4VJU EKOKA  
UA9OBA, EK1NBR UA1NBR, EL0AT WA3UHP,  
FM7CO FSUJ, F00DF/TODF W6BGJ, F00DF/  
T080DF W6BGJ, F08H1/T080H1 W6BGJ,  
F08H1/T080H1 K1CC, F08JF F18BD, FYDD  
W3BL G4LFE EA8VIA G4DYO, H44MB WA2MM,  
I2DKM I2QIMQ, JW1UWLA B9U, KC4AAA  
KA9US, OK5OCY OK2GVF, OX5JM KL7GN,  
P2PR UP2BFE, S05DCA LA5OCA, T30AT G3XZF,  
VK0GC VK3KR, VK0PK VK5APK, VK9WCY VK9NS,  
VK9CS G4MBF, VK9ZS VK6YL, VP2MDB W2WSE,  
VP2MFY K5BDX, VP2MFZ ZAKBR, VP5IS K9QDB,  
VP5JFX W4DR, VP5UJY W4UDY, VP8LP G3VFW,  
VQ0E ZL1BH, VQ6AR W8RW, VQ6CI KA4UMB,  
VQ9GD K6MKY, VQ9BS G6JUB, VQ9EH W6BKYT,  
VQ9JD N6AFD, VQ9MB WA4UYU, VQ9PG  
W4MTE, VR6KY LA7UJ, VS6AM JH1FHL, VS6DO  
GB4FE, VS6GA G4CCM, VS6MS N200, YU2FB1  
JA7NUN, W6AIE/KH0 K6GRT, W6TEC/CT3 W6TEC,  
W6DCN/C6A W6DCN, W6H1/H8 W6H1, WA6DJO/  
KH8 W6BGHS, WA7LUU/H8 W6B1D0C, W8LOLS/  
DUB W67AE, W86LUW/H8 V1EABU, W8BJW/  
HP1 W8BJW, W8DQGO/K8T KH8JBE, XE1BGM/  
W8DNKT, YB0AET PA0RTY, Y82DI JH2QFI,

YB5AES W4BBP, ZD9YL W4FRU, ZF2AF W0GI,  
ZF2GE W44WTG, ZK1XG DB9CH, ZL1B1G/K  
ZL2HE, ZL3H1A/ZL2QW, Z-40YR G VK3DW/  
ZL4PO/C ZL4KI  
ZQ7LW PO Box 24, Matkatas, Melaw.  
8P6OT PO Box 42B, Barbados.  
9L1AC PO Box 10, Freetown, Sierra Leone  
9M2FR AS Lengkok Cavendish, Ipoh West Malaysia  
9Q5HK BP 9732 Kinshasa Zaire  
9V1VP Bob Furzer 12-01 Naga Crt, 356 Bukit Timah  
Singapore 1025  
9V4BA PO Box 1167, Port of Spain  
A35JL PO Box 15, Nukuia ofa, Tonga  
AA6Q PO Box 147, Ras Akhramah, UAE  
C21BD PO Box 225 Nauru, Central Pacific  
C21RK PO Box 139 Nauru Central Pacific  
CE3YV Apt0, 2115 Santiago, Chile  
ED8EIA PO Box 698 Las Palmas Canary Islands.  
F68XY Marson Rouge La Brueres-Lore, F-72420  
Vass France  
F08H, Richard Ley, PB5872 Pirae, Tahiti  
F08HJ Josephine, 25 rue Yves Martin P.ree, Tahiti.  
F08KB Gabriel Lan San, BP 826 Papeete Tahiti  
H44SH PO Box 258 Honiara Solomon Is and  
HPIAFL PO Box 9152 Panama City  
H21AJ PO Box 6177, Jeddah  
JT1AS SS Nym, PO Box 639 Ulan Bator 13  
K07P/KH2 PO Box 124 Everett, Washington 98203  
K05ZF PO Box 135692, Beirut.  
Q25SH PO Box 40, Funafuti Tuvalu, Central Pacific  
T30AC PO Box 443, Bato, Tarawa, Rep of West  
Kiribati  
T30DB PO Box 457, Bato, Tarawa, Rep of West  
Kiribati  
TQ9ET PO Box 115, Guatemala City  
TQ9VT PO Box 286C Guatemala City  
TR8CR PO Box 4356 L. brevie  
V3SHG PO Box 698 BSB Brunai  
VU2AUS PO Box 148, Vasanthanagar, Bangalore,  
560 052 India.  
XT2BP PO Box 548, Ousdoudougou  
YB7AK PO Box 15, S. gkawang  
YC2DN7 PO Box 181 Solo, Java, Indonesia  
YJ1ND PO Box 685 Port Vila, Vanuatu  
ZK2K PO Box 37, Nure  
ZK2S PO Box 37, Nure  
ZL2HE Art Law, PB Mangalore Dannerkriv, New  
Zealand  
ZP5JCY PO Box 418, Asuncion  
ZS6AF PO Box 8828, Johannesburg, 2000, South  
Africa  
**WORKED ON THE EAST COAST**  
28 MHz  
WB20SY WBSNCZ XE2MX, XE2WNZ  
  
21 MHz  
4K1B 5K3DM, 6Y5IA A4XHZ, C21RK C02HS, EA8Q/  
F08JP JH7AH, TL8ER, VK0CR, VQ9EC, VQ9D, W4BQJ/  
KH8 W4ZAD, W4OR XU15S YB08G Z21GJ, Z23-D,  
ZF2GE, ZK2JS Z53JS, Z55YN Z55YV Z5AIS  
  
14 MHz  
3X4EX 6W8EX 6Y5HN, 9V0UV C21RK C6ANU C02HS  
CT1FL CT2CR CT2FH C3TBM DL9WCY EA8Q/  
EL0BC EL2AD F6ER/C F08CK F08JP, H42KRP/  
HASOQ H4GOK H48QK H8B9A JWIUW KATEXC/  
KL7, KC4AAA, KA4US, LA1F6, LA1GW, LA5YU/  
LA1EU LA8PE, L21BC, L22RF, OH3LN, OX2G/  
OZ8RH SM3AZV SM3AZV, SP4W HP SP4WE  
TF3CU, T08H1, T8CR, J4R2Y V40GC, VK9ZS/  
ZL1BH VS5DO W42AD, Y33AKT, Y8BARM, Y06FX,  
Y51UL, YU2HDE, Z53GK  
  
7 MHz  
3020M C21RK, CE3ELS, CP8BG, CP8HD, F0F0-0,  
G3FRO, G3TMA, G100R, KA4USV, KL7AF KP4DEX/V2,  
OK2BFN, OZ1EOE, T12CF, VK2BCH/LH VP2VD,  
W8PADG YV380S ZK2K ZL4PO/C  
  
\* Denotes CW  
**WORKED ON THE WEST COAST**  
7 MHz  
GY3MJ, JG5J1/OH0 EA5CTX/H80, EA8V, 64JLF/EA8,  
  
AMATEUR RADIO, November 1983 — Page 27

HZ1AB\*, LU8DPM

3.5 MHz  
VP8ANT\*

1.8 MHz  
VK9NS\*, ZS5BK\*, ZS6BXB\*

\* Denotes CW

#### INTERESTING QSLs RECEIVED

A3JL, D4BC F08F0, S5A0D, T2GSH, TR8G, V6GCBN, VE7CXJ, VK0CW, VU2AUS, XE2AD, YC2DNIT, ZL3H1A, ZL40Y/C, ZS6AF

#### CW SWling with Eric L30642

28 MHz  
JA (MANY), KH6AQ, N6BJW, W47BHK, ZL1JR, ZL1LT, ZL2DR

21 MHz  
BY1PK (0700 UTC), DL1NR, EA7CMP, F6HNR/MM F06JP, G4ETA, HK2VP, HL1ACW, KC6RN, K8GWS/KH2, KH6BG, LA4VL, SK3HK, T3QAT, VE1LG, VE7SL, VS6HI, W1AW, WD0AA, XU1SS, YU1KL, Y3ACF, ZS6BYG, ZK7JH

14 MHz  
CT4TK, K6ME/DJ2, EA2ALW, G6ZY/EA6, FK9EV, FY7YE/FM7, F08JP, G04AM, HL1CX, HL9SN, HP1AW, I0JX, L8PPE, LX1B1, LX/OL3MAB/P, LZ1ND, OX5JM, VE1ASJ, VP0DR, VU2BEL, W5RRR/NASA, YB4FN, YB5AG, YB6AFA, YS1SA, YU4WKZ, ZB9FK, 457NS (1130 UTC)

10 MHz  
A3MS (1200 UTC), OK5CP, F06/F, FC8TT, FK8DZ, G3TSA, HB9BF, JA1XYB, JA50OH, J8HWH, KH8DD, VE1BB, VE2DC, W1FZY, W8FK, DL2GG/YV5, ZL0AD6, 9H1BB

7 MHz  
C02HT, CT1BNX, EA5SP, EA9JV, F6DHB, FK8CE, F08JR, G6LX, G6GAL, HA7UG, HB9BP, HM2VP, H06/FSEYS, H3PC, K6CF, KP2J, LX1PD, LZ2SC, O6H2G, OKWCY, SM6LG/MM, SMOCC, VE1AVL, VE3CR, XE3ARV, YB5AG, YD3BV, YU5CF, ZF2DZ, ZL4P/C, 4N9B, 4X8NK, 8JTHAM

3.5 MHz  
FK8CE (1100 UTC), J10PU, OK4AWQ/MM (2100 UTC), T32AF (1100 UTC), YU7JDE (2100 UTC)

1.8 MHz  
VK2BH, V20PS, VK2DSG, VK3 (8), VK4VS, VK5AEP, VK5AFA, VK5KL, VK9NS (1100 UTC)

#### RECENT QSL CARDS RECEIVED BY L30642

BY1PK, G6ZY/EA6, FG7BP, FK8EB, HR1RC, J47EY (10 MHz), P29BR, UA2FCB, UR2RKS, EX5UW, VK9NS (1.8 MHz), YJ8LT, F08HD

#### THANKS

Assistance with the preparation of this column was gained from magazines including LONG SKIP, KH6ZF, REPORTS, RADCOM, JAM and JAY O'BRIEN'S QSL MANAGER LIST, WORLD RADIO, QAZ, OX, DEXPRESS, VERON and the DX NEWS SHEET. Individuals who contributed included VK2PS, 3BY, FR, UJ, YJ, YL, ABR, PNL, 6FS, HD, NE, PF and SWL 30042. Information from overseas includes amateurs AD1S, G3NOC, 18SAT, K6HHD, ON7WW, W6GO, W6GFJ, ZL1AMN and ZL1AMM.

Thanks to one and all.

AB



## THUMBNAIL SKETCHES

Peter Brown, VK4PJ

16 Bede Street, Balmoral, Qld 4171

hobbies was boating. Ben served in New Guinea during WW2 with the RAAF. Orchid growing is Ben's present hobby at Hopetown.



#### BEN GRIMES 4BD 1929

Ben, born in 1901, is 82 years old. He spent his early days on 75 acres in Tarragindi, Brisbane, and was licensed 4BD in 1926. However like so many others he operated well before then, with a Ford coil etc. While at Brisbane Boys Grammar School he communicated with ships from the old National Bank in Stanley Street, the home of a school friend, Davidson, around 1914. Tuning was with two test tubes part covered with silver paper, sliding one upon the other.

Soon after 1926 Ben began broadcasting music from Tarragindi and appreciative letters from New Zealand attest to his success. Ben had successful contacts with West Coast USA, Hawaii, Peru and Europe, and attributed some of his success to the rolls of wire netting behind his antenna as a screen.

A newspaper item tells that "The power used was ten watts with a UX210 tube, power from a transformer connected to electric light mains, loose coupled Hartley circuit and home made chemical rectifier for DC. Aerial was a large horizontal cage supported on two fifty feet masts. Receiver a Reinartz 2 valve with one soft valve and one power valve."

A wool classer by trade, one of Ben's



#### OSCAR "OCK" ALDER VK4JB 1929

Oscar was born in Brisbane, 1896, schooled at Eagle Junction and on to the Central Technical College to learn woodclassing starting at Jondaryn, in 1918, and moving through Isleford, Cunnamulla, Dirranbandi, Blackall and Wyandra.

"Ock" often took his radio gear on his travels, using 201A tubes fed from his car battery and a 90 V "B" battery to give him 1 1/2 watts by key. His antenna would be a wire over the nearest tree branch.

At that time "Ock" was a member of the Queensland Radio Transmitters League and the WIA.

He remembers the late Reg Vickary broadcasting descriptions of football matches, in the late 1930s, from Cunnamulla where Reg had a radio repair shop.

Transport, off the railhead, was often by backboard and a team of horses and one sometimes got lost among the vast growths of pricklypear.

"Ock" kept regular skeds with Clive, VK4CC, then VK0CC, on Macquarie Island, in the 1920s, to keep Clive in touch with his home.

He cancelled his licence in 1971. Woodclassing was set aside and he joined the Brisbane City Council Central Purchasing Branch for some thirteen years before retiring in 1965.

Many Happy Returns for your 87th birthday "Ock".

AB



## JOIN A NEW MEMBER NOW!

# DX'ING TO "G"-LAND???

## THOUGHTS FOR THE NEWCOMER

Jim Swan VK2BQS

PO Box 93, Toongabbie NSW 2146

*Originally, it was thought that an analysis of all successful DX contacts might provide some interesting patterns, however, the complexity of such a task is mind boggling so it was decided to deal only with contacts into the United Kingdom.*

Contest contacts were not included in the survey the majority recorded being SSB with a small number of RTTY. Most QSO's were of the rag-chew variety, ranging from fairly brief to very extended duration. Operations were almost daily, usually from half hour to two hours depending on circumstances, as being retired, my non-radio activities are extensive but not to any set pattern.

The graph does not purport to be representative of ionospheric conditions alone as many other factors must have some effect on results, such as changes to daylight saving time at each end, seasonal weather conditions, holiday periods in UK, individual habits, etc, etc. Almost five hundred QSO's over a five year period were included in the figures.

In the graph, the broad-hatched columns represent 'G' contacts, the narrower solid extensions represent contacts with "GM, GW, GI, GD, GJ, GU". Looking at the results two variations appear which can be explained fairly easily.

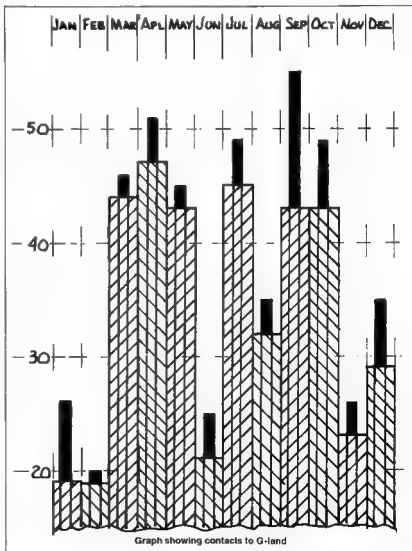
1 The December peak is probably due to my habit of calling into well-known stations to exchange festive season greetings.

2 The August trough is probably caused by the UK holiday season when the country almost closes down.

What I cannot explain is the July peak. Logically this month should have been almost on a par with August. I am inclined to think that it may be that July is the month in which major equipment changes take place in my shack due to the cooler weather and that this increases total operating time. However, I have no proof of this!!!

If a plot is made of contacts only of other than 'G' stations, a less significant result is obtained, probably due to the small sample and/or the geographical scatter of the "GM to GU" calls listed above.

Old timers will not gain anything from this exercise, they probably know the position instinctively, but for the newcomers, what I do suggest is that if you want to work "G-land" from VK, the best months are March/April/May and July/September/October, a V.K. autumn equinox plus a few weeks and spring equinox plus a few weeks, with some consideration also to the July funny.





# AWARDS

Mike Bazely, VK6HD  
FEDERAL AWARDS MANAGER  
8 James Road, Kalamunda, WA 6076

Some months ago I wrote about the possibility of introducing a new DXCC Certificate with band/mode stickers. At the present time the decision on the format of the new certificate is with the Federal Council. As soon as a decision has been reached I will go ahead with obtaining stickers and notifying members through this column, of the application procedures.

Hopefully we can get this one on the road by the 1st January, 1984. Has anyone got any information on the "National Parks Award"? If you have I would appreciate details and, if possible, a sample copy of the certificate.

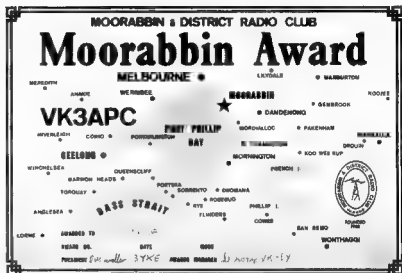
## YUGOSLAVIA

The OSIJEK award commemorates thirty five years of amateur radio in the city of Osijek. The award is open to SWL and licensed amateurs with the usual GCR list applying. The cost of the award is 5 IRCs or \$2. Australian stations are required to contact five stations in Osijek and/or Cepin, Dalj, Laslovo and Josipovac. The award measures approximately 40 x 20 centimetres and is printed in red, blue, beige and black. Applications should be sent to: Kruno Ferić, YU2OM, via B Kidric, 102/12, 54000 Osijek, Yugoslavia.

## AUSTRALIA

The rules for the Moorabbin and District Radio Club Award are as follows:

1. This open award is available to any licensed amateur who has submitted evidence of two-way contacts with MDRG Station VK3APC and/or member stations, identifiable by call sign and number, and to any SWL who submits evidence of having heard



contacts between amateurs and member stations.

2. Contacts may be made on any band and any mode.
3. The award is issued on a point scoring system: Club members — 20 points required; Non-club members — fifteen points; SWLs — eight points; Overseas stations — five points or one contact with the Club Station VK3APC.
4. Three points scored for working the Club Station VK3APC and one point for working

a member station. Stations to be worked once only.

5. Contacts made as from the 1st June 1983 are valid for award points.
6. Proof of contact to be by log extract showing date, time in UTC, call sign of station worked, frequency, mode of emission, signal report, club identification number and points claimed. This extract must be certified by two other licensed amateurs.
7. Applications for the award to be sent to the Awards Manager, Box 88, East Bentleigh, Vic 3165, together with a fee of \$3.00.
8. Special Endorsement — RTTY — five points; CW — ten points.
9. The MDRG holds a regular Club Net on 3.565 MHz each Monday night at 1000 UTC. This attractive award is printed in blue green and black and measures approximately 25 x 15 centimetres.

## MALTA

Applicants for the following three Maltese awards need to forward details to the Awards Manager, MARL, PO Box 575, Valetta, Malta. GC The awards are also available to SWLs and the usual GCR applies. The cost of each award is US\$3 or the equivalent in IRCs.

## 9H DIPLOMA

Five points required as under. Each QSO with the island of Malta counts as one point (9H1). The island of Gozo counts as two points (9H4). The Club station 9H1MRL or 9H1DC count as two points.

## DIP-MED

Applicants have to work a minimum of



RADIO CLUB - OSIJEK

SAJNE

DIPLOMA »OSIJEK«  
DIPLOMA »OSIJEK«  
DIPLOMA »OSIJEK«  
DIPLOMA »OSIJEK«



AWARDED TO: \_\_\_\_\_  
FOR MAKING TWO-WAY COMMUNICATION ON \_\_\_\_\_ WITH AMATEUR  
STATIONS IN THE OSIJEK AREA  
AWARD NO. \_\_\_\_\_ DATE \_\_\_\_\_ MANAGER \_\_\_\_\_  
Kruno Ferić - YU2OM







# COMMERCIAL CHATTER



## AUSTRALIAN DISTRIBUTORS FOR VIGILANT COMMUNICATIONS LTD

GFS Electronic Imports were recently appointed distributors for Vigilant Communications Ltd of the UK

Vigilant manufacture a wide range of commercial and marine HF communications receivers covering 50 kHz through to 30 MHz

Designed specifically for Military and Marine applications all models are heavily ruggedised to meet the sort of conditions that they will likely be subject to. They are equally at home in a largely salted environment as they are in a steaming jungle

Top of the range are Vigilant's micro-processor receivers, the SR-532 (Military) and the SR-530 (Marine). Both units feature a 200 channel memory and full remote control facilities via a modern and single pair line.

All eight models in the communications receiver range use Vigilant's tried and proven modular construction techniques, which allows for rapid and easy maintenance.

Shown in the photograph is the Model SR-500 Marine Receiver. It covers from 50 kHz to 30 MHz in 100 Hz steps. In addition it has six programmable memory channels and is approved to the UK Marine specification MPT 1210. It is designed to operate over a temperature range of -15° to +55°C with a relative humidity of 95% at 40°C

Price of the SR-500 is \$3196 plus sales tax. For full specifications of this and the other seven models in Vigilant's range of HF Communications receivers contact GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Victoria, 3132 Phone: (03) 873 3777



## DICK SMITH OPENS IN HORNSBY

As a convenience to many customers who live in the Upper North Shore area of Sydney,

the important retailing centre of Hornsby has become the host of the latest Dick Smith Electronics store.

Now Hornsby's electronics enthusiasts (and enthusiastic beginners as well) will have, at their doorstep, everything from components to kits, home computers, telephone products, Hi-Fi equipment, electronic games, etc.

Located at 4 Florence Street, the phone number is (02) 477 6633. Hornsby store manager, Mark Abicair (pictured here), and his specially trained staff are looking forward to serving you.

So, why not drop into Dicks new Hornsby store, have a look around and take advantage of the fantastic specials and direct import prices.



## LARGEST AND MOST MODERN ELECTRONICS WAREHOUSE IN THE SOUTHERN HEMISPHERE

Late August will see the doors open on the new extensions to the Dick Smith Electronics headquarters at North Ryde, NSW. In excess of \$2 million is being spent on both extending the previous 50 000 sq ft building to the new 85 000 sq ft and remodeling of the former structure.

This massive increase in facilities was necessitated by the unprecedented growth being experienced by Dick Smith Electronics in Australia and New Zealand.

The public stands to benefit greatly from the new and greatly expanded customer services, most of which are already operational.

The Service Department has nearly doubled in size, allowing for the installation of additional highly sophisticated testing equipment. Of invaluable assistance will be a new totally sound-proof testing and research laboratory. There is even a large, air conditioned service reception area.

Also nearly twice its former size is the Kits Department. This ensures a constant supply of top quality electronics kits as well as the development of new exciting and innovative ones.

With the computerisation of the expanded Mail Orders Department, Dick Smith Electronics now has the most technologically advanced, automated Mail Order system in Australia. This means customers will enjoy the fastest possible mail and phone order service.

Double sized receiving and despatch areas, along with the additional warehousing, will

ensure that products are in ready supply and will speed their distribution. 'Speed' is the operative word and 250 metres of new 'airport style' conveyor belts, costing more than \$250 000, will rush goods through the vast expanses and between floors.

Other features include a new staff recreation area overlooking the staff swimming pool, barbecues facilities and Dick's helpaid.

## RADIO AMATEUR OLD TIMERS CLUB

### AUGUST QSO PARTY

A survey of the calls received in the thirty one logs received shows that about forty seven members of both VK and ZL clubs took part. That makes a percentage log entry of sixty six which is not too bad.

However if some of those members who check only into the monthly net could see the comments of appreciation in the log entries of those who do come to the party they would surely think it worth a try.

Please note that the next party will be on 20 metres, second Monday in March (12th) 0200-0500 UTC

### SCORES

CALL	MODE	QSOs	AREAS	TOTAL
VK3XB	CW/SSB	28	10	1400
VK3KS	CW/SSB	27	9	1215
VK3JA	SSB	24	10	1200
VKAEM	SSB	24	9	1080
VK7AL	SSB	23	8	920
VKAIX	CW/SSB	23	6	920
VK4CJ	CW/SSB	22	8	880
VK4OX	SSB	24	7	840
VK7CH	CW	18	8	720
VK2ADR	CW/SSB	18	8	720
VK4BG	CW/SSB	18	7	630
VK3FC	CW	18	7	560
VK3ZC	CW	14	8	560
VK3CJ	CW/SSB	17	6	510
VK3RV	SSB	14	6	420
VK3KV	SSB	13	6	390
VK7RY	CW/SSB	15	5	375
VK3XF	CW/SSB	12	5	300
VK7BP	SSB	10	5	250
VK2HQ	SSB	11	4	220
VK7JU	SSB	11	4	220
VK4ALW	CW	7	6	210
VK3YW	CW	5	4	100
VK6EF	CW	6	3	90
ZL2AB		18	9	855
ZL2US		18	9	810
ZL3BA		15	6	480
ZL1UJ		16	6	450
ZL1VX		12	7	420
ZL3HS		8	5	200
ZL3AY		8	3	120

Next time, could logs be forwarded as soon as possible after the party preferably within a week, so that results can be published earlier



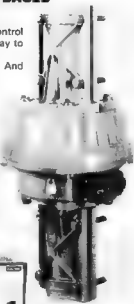
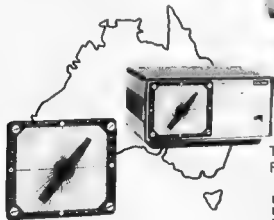
# DIRECTIONAL CERTAINTY ... WITH DAIWA

## DAIWA ROTATORS GET AUSTRALIAN AMATEURS GOING IN THE RIGHT DIRECTION WITH AUSTRALIA-BASED GREAT-CIRCLE MAPS.

With Daiwa rotators you have the advantage of control boxes with maps centred on Australia! The best way to get you going in the right direction. Daiwa rotators offer you quality and innovation. And Daiwa rotators offer you all the choices you need!

### A CHOICE OF CONTROL BOXES ...

There is a round controller (Type R) which is a great-circle map centred on Australia, with area prefixes and paddle-switch control. Or you can choose the pre-set controller (Type X) which allows you to pre-set the control area you want to work.



### ... AND A CHOICE OF MEDIUM OR HEAVY-DUTY ROTATORS

You can choose a Medium Duty Rotator (Model 7500) or a Heavy Duty Rotator (Model 7600). The medium duty rotator will handle the average beam with ease. The heavy duty rotator is designed to handle larger amateur and commercial beams and arrays. Compare these specifications:

	Medium Duty (DR7500)	Heavy Duty (DR7600)
Rotation Time	60 sec	64 sec
Brake	Mechanical	Mechanical and Electrical
Stationary Brake Torque	2000kg/cm	4000kg/cm
Vertical Load Permissible	200kg	200kg
Max Size Weight	38-63m 5.5kg	38-63m 5.6kg
Motor	24V	24V

THIS GIVES YOU A CHOICE OF **FOUR** DIFFERENT COMBINATIONS ... TO SUIT YOUR OPERATING STYLE

**DR7500R** MEDIUM DUTY: PADDLE SWITCH CONTROL BOX  
**DR7500X** MEDIUM DUTY: PRE-SET CONTROL BOX.  
**DR7600R** HEAVY DUTY: PADDLE SWITCH CONTROL BOX  
**DR7600X** HEAVY DUTY: PRE-SET CONTROL BOX

Daiwa rotators are made by the innovators who brought you cross-needle meters. They offer long life and quality Daiwa construction, and are the result of a considerable amount of research.

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**\$1100**

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**TS-43X HF TRANSCEIVER**  
Complete with MB-430 and MC-42S  
PS-430 POWER SUPPLY \$210



**AT-250  
AUTOMATIC  
ANTENNA  
TUNER**

Fully automatic, covers 1.8 to 30 MHz, inbuilt 4 position coaxial switch, SWR and Power Meter. 240V AC or 13.8V DC. Slaved by TS-43X or manually band selected for any HF Transceiver.

**INTRODUCTORY  
OFFER**

**\$425**

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**MC-85 \$120**  
**BASE MICROPHONE**  
Has inbuilt amplifier

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**TS-93X MARK II**

The ultimate in HF transceivers  
General coverage receiver.  
Amateur band transmitter.

**\$75 WHEN PURCHASED  
ONLY WITH TS-93X**

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Valves are still in!!  
(at least in the finals)  
Complete with extra set  
of final valves

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**\$1200**



# KENWOOD

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KR-500

TK-50/600

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### TR-9500 70CM ALL-MODE TRANSCEIVER

The TR-9500 is a compact 70 cm USB/LSB/CW/FM transceiver providing increased versatility of operation on the UHF bands. It features dual digital VFO's six memory channels, memory scan, automatic band scan, SSB/CW search, high performance receive and transmit, and a host of other features. It should be especially appealing to the OSCAR or 70 cm SSB/CW operator.

### TR-9130

### TR-9130 2M ALL-MODE TRANSCEIVER

The TR-9130 is a powerful, yet compact, 25 watt FM/USB/LSB/CW transceiver. Available with basic UP/DOWN microphone.

**\$50  
FOR 2**

## BONUS! TWO B0-9 BASE STANDS

supplied for an additional \$50 when both the TR-9500 and TR-9130 are purchased together.

### TR-7950 2M FM TRANSCEIVER

Big Power — Big Features — Small Price!  
50 Watts — 20 Memories

Buy an SP-40 Mobile Speaker  
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**\$530**



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## FM MICRO MOBILES

Micro Mini Mobiles for either 2 metres or 70 centimetres. 25 watts on 2 metres or 10 watts on 70 centimetres size — 141 mm wide x 158 mm deep x 39.5 mm High. 5 memories — Scan.

**\$450**  
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**BOTH UNITS COME  
WITH FREE SP-50  
REMOTE SPEAKER**

**SP-50**

**MC-55**

**MC-55**

Mobile  
Microphone with  
time-out-timer  
Electret  
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microphone

**\$65**

**FC-10**

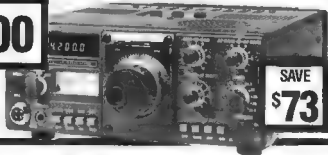
Remote frequency control  
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Normally \$70 but only \$57  
when purchased with  
either unit

**\$57**

## TS-130SE

**\$800**

Economical mobile. All HF bands, 100 watts. VOX — Calibrator — IF shift — Speech processor — Noise blanker. Exceptional value at \$840. Even better value at \$800 complete with MC-30S mobile microphone.



SAVE  
**\$73**

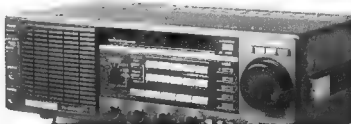
## R-2000 RECEIVER

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**VC-10**

**VHF ADAPTOR**

NORMALLY \$190 BUT  
WHEN SUPPLIED **\$110**



INCLUDES FREE  
DC LEAD FOR  
12 VOLT OPERATING.  
WORTH OVER \$16.

~~WAS \$670~~

**\$655**  
NOW

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**70CM FM  
HAND-HELD**

**TR-2500**

**2M FM  
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Definitely the best Hand-Helds available. Jam packed with features — Memories, Scan etc. includes n-cad batteries and charger

**WAS**

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**NOW \$375**

**ST-2 BASE STAND**

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## SWR METERS

**WAS**

~~\$58~~

**\$56**

**SW-100**

Mobile model 0-150 W.  
Model (A) 1.8-150 MHz  
Model (B) 140-450 MHz

**SW-200**

**WAS**

~~\$125~~

**\$119**

**SW-2000**

**WAS**

~~\$149~~

**\$140**

**SW-2000**

Base model 0-200/2000 W  
1.8-54 MHz

**SW-200**

Base model 0-200 W  
Model (A) 1.8-150 MHz  
Model (B) 140-450 MHz

## ACCESSORIES

SWC-1 Optional coupler  
1.8-150 MHz  
SWC-2 Optional coupler  
140-450 MHz  
SWC-3 Optional coupler  
1.8-54 MHz

**\$38**  
**\$38**  
**\$38**

## NOTE

Models SW-200 and SW-2000 have provision for connecting three couplers with remote sensing. Ideal for novices — Inbuilt PEP reading meter.

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Dual band mobile antenna for only \$15 with every TW-4000A sold

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**TW-4000A VHF  
UHF DUAL BANDER  
25W TRANSCEIVER**

Mobile — 10 memories — scan

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SPEAKER  
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Trio equipment above is only available direct from Trio-Kenwood (Aust.) and is not available from the Kenwood dealers listed in this advertisement.

**DM 81 DIP METER**

The DM 81 dip meter is intended for adjustment of radio equipment and antennas. It is self excited oscillator designed for external coupling to the equipment being tested.

## FEATURES

- Measurable frequency range of 700 kHz to 250 MHz in seven bands
- Capacitive probe for measurements without removing coil shields
- Storage compartment for all seven dip meter coils, capacitive probe, earphone and ground clip lead
- Convenience for both indoor and outdoor measurements at solid state and built in battery

**\$130  
INCLUDING  
FREE  
BATTERIES**

# KENWOOD

## ANTENNAS

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TK-137 Frequency range 13 MHz to 30 MHz continuous. Boom length 7.3 metres — Weight 18 kg — Twin Radio 6.5 M — 2 Kw Balun included — Average gain 9.5 dB.



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Frequency range 50 MHz to 600 MHz continuous. Use for 8 metres, 2 metres, 70 cm, 50 cm, TV, ATV, FM, Scanners etc. Boom 3 metres — Longest element 6.5 metres — Average gain 8dB — 300 watt balun included

**19 ELEMENT LOG PERIODIC PLUS FREIGHT**

## TK-137 \$395

PLUS FREIGHT

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WITH BOTTOM CLAMP

**\$170**

WAS \$180

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SATELLITE TRACKING VERTICAL POSITIONING

WAS \$220 **\$200**

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TV TYPE FOR SMALL ANTENNAS

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All Kenwood Rotators supplied by Trio-Kenwood (Aust.) come complete with top and bottom brackets, 3 core flex, correct Aust. plug and correctly wired for Australian requirements

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# KENWOOD

## PROFESSIONAL ROTATOR

The CT-1000 easily handles up to large HF beams and large VHF/UHF arrays. The good-looking Control Console incorporates an 8-bit CMOS Microcomputer Unit and features a digital az/muth readout accurate to  $\pm 0.5^\circ$  and a circular LED heading indicator.

The microcomputer unit automatically releases the electromagnetic brake even in a strong wind. With a keyboard command, the microprocessor, controlling turning speed and brake mechanism, turns an antenna accurately to the direction instructed. SCANNING Scanning Range and Scanning Speed are programmable. CONTINUOUS STEPPING Turning Range, Stepping Angle and pause duration are programmable. SINGLE STEPPING is available. The CT-1000 has provision for 10 channels in the battery backed-up memory. Antenna headings stored in the battery backed-up memory can be recalled with a keyboard instruction and are retained even when the external power source is removed. Scanning operation among the channels in the battery backed-up

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The SM-220 station monitor features, in combination with a built-in two-tone generator, a wide variety of waveform observing capabilities.

### HC-10 CLOCK

Highly advanced world clock with dual display which can memorize 10 major world cities and two additional regions.



USUALLY \$680\*

**\$640**

## KENWOOD COMMERCIAL

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The TK-801S is a synthesized FM Two-Way Radio, 32 channel capability at 15-40 watts on 450-512 MHz.

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### TK-701S

BASIC MODEL

**\$850**

VHF 150-174 MHz

### TK-801S

BASIC MODEL

**\$900**

UHF 450-512 MHz

Please direct all enquiries to  
Trio-Kenwood (Aust.)  
4E Woodcock Place,  
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(INCORPORATED IN N.S.W.)

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# NATIONAL EMC ADVISORY SERVICE



Tony Tregale, VK3QQ  
FEDERAL EMC CO-ORDINATOR  
38 Wattle Drive, Watsonia Vic 3081

*This month we have reprinted an article which appeared in AR in September 1974. Although the monetary values have increased since this time the basic problems are still the same and the solutions may help many of our younger amateurs and members.*

## Audio frequency interference (AFI)

(Reprinted from Radio Communication, April 1973)  
(Reprinted from Amateur Radio, September 1974)

P W Waters, G3QJV

8 Gay Bowers, Hockley, Essex, UK

### THE PROBLEM

The current boom in hi-fi sales has led to an increase in the number of cases of interference caused by radio transmitters operating in close proximity to audio equipment. Almost all audio equipment now being produced for the domestic market is entirely solid state and this changeover from valves to transistors has coincided with a hi-fi boom, making it difficult to assess to what extent transistors are responsible for the increase in the number of cases of interference. Certainly transistorised equipment appears to be far more susceptible than the older valve equipment. Also of significance is the now widespread usage of magnetic cartridges which require amplifier sensitivities of the order of 3 or 4 mV. This usually necessitates one or two additional stages of amplification whereas the older type of crystal and ceramic cartridges having far higher outputs require far less gain from the amplifier.

Unlike television interference there is usually very little that can be done at the transmitter end to prevent the trouble. Apart from reducing power, moving aerials or switching off altogether, the cure must be at the complainant's end. Like all kinds of interference this poses a social problem. The average cost of a stereo diagram is around £80-£100, and for a hi-fi installation comprising separate amplifier, speakers, turntable and possibly VHF tuner the price rises to the region of £150 to £200. Any person having spent this amount of money is not going to take kindly to hearing a burst of CW or "distorted" SSB coming through in the middle of his or her favourite record. Unfortunately, telling your neighbour that the interference is not the fault of the transmitter, but his own equipment, is not going to ease the matter even though it is probably true.

Of course, each case has to be dealt with on its merits and no hard and fast rules can be laid down. It is of prime importance to use tact, patience and common sense. A special mention should be made here of the case of interference from an AM transmitter. A sensitive hi-fi system may well be picking up such a signal and relay it in "full frequency stereo sound" — a situation which calls for special tact.

### THE CAUSE

Before discussing the various ways in which this kind of interference can be prevented, it is necessary to understand how the RF signal reaches the amplifier, is rectified, and emerges at the speaker as an unwanted signal. Fig 1 shows typical audio amplifier low signal stages. In the case of the transistor version notice the base/emitter junction. This forms a fairly effective junction diode and any RF signal that reaches this stage will be rectified and passed on as an audio signal to the following stages. Similar comments apply to the valve stage. RF energy reaching the grid of the valve is likely to be rectified by non-linear action and the resultant demodulated signal passed on through the following stages as an audio signal. With the modern hi-fi amplifier, having a high overall gain and an output rating of 10 to 15 W/channel or even more, RF breakthrough can be dramatic.

There are a number of paths the radio signal can take to reach the circuitry of an audio amplifier. In high RF fields even direct pickup by the circuit board is possible. Normally, however, the signal is fed to the amplifier via the various connecting cables which make very good "aerials". Two of the most common sources of trouble seem to be the mains cable and the speaker leads. The mains connection because of the modern ring mains circuits, results in the entire house power wiring being connected to the amplifier and acting as a long-wire "aerial".

As for the speaker leads, stereo reproduction requires a pair of speakers to be separated from the amplifier and turntable unit in order to obtain the stereo effect. In practice this means that the speakers are very often positioned several yards away from the amplifier, the length of twin flex usually used for this purpose making a good "aerial", possibly resonant on or near one of the HF amateur bands. This, of course, ignores the other connecting cables from record turntable tape unit, VHF tuner etc. It is not surprising therefore, that a substantial RF signal can find its way into an amplifier several hundred feet distant from the transmitter.

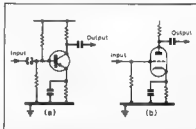


Fig 1. Typical first stages in audio amplifiers which are open to RF interference, (a) transistor, and (b) valve.

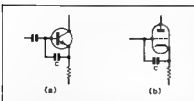
### THE TREATMENT

There are two basic ways of tackling interference in audio equipment. Either the circuit can be modified to prevent the rectification occurring, or the RF signals can be prevented from reaching the amplifier circuitry by fitting filters to the various connecting leads.

Dealing firstly with the rectification problem, it has already been shown how in a transistor amplifier, trouble usually arises when RF reaches the base/emitter junction of a transistor. Similarly, in a valve amplifier too much RF energy on the grid can also result in rectification. Clearly, if the RF signal can be bypassed to earth without degrading the wanted audio signal then the problem will be solved. The most obvious solution that comes to mind is to fit a capacitor between input and earth of the amplifier of such a value that while it looks like a near short circuit at RF it offers a high impedance to audio frequencies. Unfortunately, between the input and the transistor base or valve grid may be several inches of wire or circuit board switch contacts with their associated connecting leads and other components. Bypassing at the remote input socket of the amplifier may therefore not be sufficient.

A far more effective method of preventing rectification is to solder a capacitor directly across the base/emitter junction or between control grid and cathode to prevent an RF potential difference between the electrodes.

Fig 2 illustrates the required circuit modification. The capacitance value  $C$  can



**Fig 2 (a)** A suitably chosen capacitor connected between the base and emitter of an early transistor stage will bypass the offending RF to earth without affecting the audio signal. Suitable values are discussed in the text. **(b)** The analogous modification to a valve stage.

be around 1000 pF, although it is by no means critical. The British Radio Corporation recently recommended values of 2000 pF for one of the transistorised radiograms. This effected a complete cure without affecting the fidelity of the amplifier. Because of the generally higher impedance of valve amplifiers it would be desirable to keep the capacitance value as low as possible and to include an RF choke or 10 k ohm resistor in series with the grid to prevent too much loss of high frequencies.

In some cases it will be found necessary to fit bypass capacitors to more than one stage. An indication as to exactly where in the amplifier the rectification is taking place can be obtained by noting whether the level of the interference changes when the amplifier volume control is rotated. Similarly a test should be made to ascertain whether or not rotating the tone controls has any effect on the response of the interfering signal. If the signal is affected by adjustment of any one or all of the controls then the rectification is probably taking place in an earlier stage. The word 'probably' is used deliberately. In a recent case investigated the RF signal was getting past the first stage and being fed to the following stage via the volume control which was acting as a variable attenuator. Although the rectification took place after the volume control, in practice the fitting of bypass capacitors as shown in Fig 2 usually results in a complete cure.

Once again there are exceptions to every rule. For reasons which are not clear to the author there has been a case where the fitting of a capacitor across the base/emitter junction has considerably increased the amount of breakthrough. So as an alternative, one or two ferrite beads can be slipped over the base lead of the transistor. However, this can present practical problems if the transistor happens to be soldered very close to the circuit board. In such cases, therefore, an attempt must be made to keep the RF signal out of the amplifier circuitry.

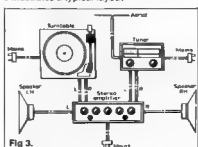
Up until now various ways of preventing RF rectification on by modifying the circuitry have been considered, without making any attempt to keep the RF energy out of the amplifier. Very few domestic amplifiers are housed in a sealed metal box, but in a majority of cases the RF signal is introduced into the amplifier by means of the external connecting cables, so this need not be a drawback. For reasons mentioned earlier it may not be desirable to attempt to effect a cure by working on the internal circuitry. If as an alternative, a filter

can be fitted that will either block the path or short circuit the RF signal to earth, then the interference should cease.

The first step is to find out which lead or leads are acting as aerials. Very often this is likely to be a matter of trial and error, but there are two ways in which identification of the offending lead can be revealed. Firstly, with the AF gain advanced, the various signal-carrying leads into the amplifier should be disconnected. If the interference stops or reduces, then the lead concerned is to some extent acting as an aerial and will require attention as detailed later. Obviously the speaker leads and mains lead cannot be disconnected. The second method adopted by the author, very often revealing which of the leads is causing the trouble, is to couple a grid oscillator tightly up against each lead and sweep the tuning dial back and forth. The AF gain control on the amplifier should be advanced so that the background noise of the amplifier can be heard from the speakers. If the lead being tested is conveying RF into the amplifier then an increase in background noise in the form of hum or hiss will very often result when the oscillator is brought into close proximity to the lead. For best results the grid oscillator should be modulated by a tone. As amplifiers are very often sensitive to certain bands of frequencies only, it is essential that tests be carried out with the grid oscillator tuned across the same frequency range as that from which the interference is being experienced.

Before dealing with the individual leads going to and from the amplifier, a few words regarding the earthing of amplifiers may be in order. Often an amplifier will have a separate earth terminal at the back of the casing. It is sometimes recommended that earthing the amplifier to an earth separate from the mains earth by means of this terminal will help reduce RF breakthrough. Unfortunately the hi-fi installation is very often so situated that a fairly long earth lead is necessary to reach the amplifier. Instead of acting as an earth for RF signals it acts as an extra aerial and will sometimes actually increase the amount of breakthrough by increasing RF energy on the chassis. By all means try the effect of earthing the amplifier but similarly also try disconnecting the earth lead if one is already fitted.

The number of separate cables going to an amplifier in a hi-fi installation can be considerable, the actual number varying with the amount of ancillary equipment in use. Fig 3 illustrates a typical layout.



**Fig 3.**

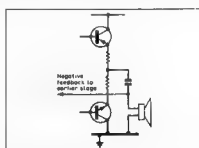
It has already been mentioned that each cable can be regarded as being an aerial capable of picking up RF signals and feeding them into the amplifier. Clearly a device is

needed that will present a high impedance to RF signals while appearing as a low impedance to audio signals. Inductors and capacitors either separately or together in the form of LC networks readily fulfill just this function. The problem with inductors or capacitors is that the former can be bulky items and both often necessitate cables having to be cut and connectors modified during installation.

In recent years ferrite has become a very popular material for use in combating TV. In particular, it has been found most useful in preventing RF on the outer braiding of coax cable finding its way into the TV receiver in addition to their efficiency, ferrite cores have the major advantage that the excess cable can be used to form the winding, preventing the need to break the cable. One of the most popular ferrite devices is the ferrite ring, on which a very compact winding can be wound. Because of its shape the cable is self-securing and the complete filter takes only minutes to construct. As a rule of thumb as many turns as possible should be wound on to the core, with a minimum of 8 or 10 turns.

For combating RF pickup by connecting cables in hi-fi systems the ferrite ring is a very effective device. It can be used on speaker cables, leads from the ancillary equipment and main leads. Usually speaker leads and signal leads from record playing units are small diameter cables, and it is quite possible for a common ring to be used for each pair of leads in the case of stereo installations. The actual grade of material does not seem critical and either rod or ring cores can be used. In the author's case great use has been made of Mullard FX1588 rings. It is most important that the filter be installed at the amplifier end of the cable run and as near to the amplifier as possible.

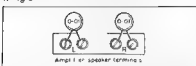
Ferrite inductors are not the only devices for blocking out RF signals although they are probably the neatest and most compact, if not the cheapest. Coaxial cable substituted for the usual twin flex speaker leads will often help considerably where RF is being picked up on the 'positive' speaker lead and conveyed back to the early stages of the amplifier via the negative feedback line. See Fig 4.



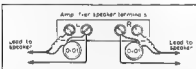
**Fig 4.** The normal output configuration of a transistor amplifier incorporates a feedback loop to the earlier stages. Thus any RF picked up by the speaker leads can be fed back to the input stages, where rectification and amplification may take place.

The use of coaxial cable will also prevent the possibility of RF energy being rectified in the transistor power output stage. This can

occur even with the amplifier switched off. The author has had one such case and there have been similar cases of interference to transistorised TV receivers reported. Even the not-so-naïve operator's not clear of this problem! In cases where the RF pickup on the speaker leads is not too severe the use of 0.01  $\mu$ F disc ceramic capacitors connected across the output terminals of the amp. can be tried (see Fig 5). More effective suppression will be obtained if an inductor is also added as shown in Fig 6.



**Fig 5.** To combat mild cases of RF pickup by the speaker leads, 0.01  $\mu$ F disc ceramic capacitors, connected across the amplifier output terminals, can be tried.



**Fig 6.** In cases of excessive RF pickup by the speaker leads a combination of capacitor and inductor can be tried.

However, the use of capacitors or coaxial cable cannot prevent RF currents from reaching the amplifier chassis by means of the 'negative' speaker lead. In such cases some form of inductance is needed to choke the RF, and the use of a ferrite ring will be found effective to filter both conductors if twin flex is used for speaker leads.

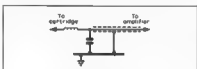
RF energy picked up on the mains lead can be a problem whether dealing with TVI, BCI or AFI. The solution is the same for all three types of domestic equipment and a number of different mains filter circuits have been published. Two circuits are shown in Fig 7. It is most important that capacitors have an adequate AC rating. The inductors can comprise 16 SWG enamel wire on a form (wood dowel) 2 in long. Ferrite rod material (such as an old medium wave ferrite aerial with the winding removed) can also be used and will probably be found more satisfactory for the more severe cases. Where a mains filter is used as suggested above ideally it should be installed inside the amplifier casing, but with the modern tendency to squeeze as much circuitry into as small a space as possible there is very often no room for the inductors required. If this is so then the filter will have to be installed externally to the amplifier casing and it is most important to make sure that the unit is completely and safely enclosed so that there is no risk of shock. The advantage of the ferrite ring filter mentioned earlier becomes obvious!

Earlier the popularity of the magnetic cartridge was mentioned. This in itself has brought about a new problem, although it is only likely to manifest itself in very high RF fields. Because a magnetic cartridge contains a small inductance it is possible for RF signals to be induced in the coil and conveyed down the inner conductor of the screened cable to the amplifier. Unplugging the



**Fig 7.** Two circuits for suppression of RF pickup on mains leads. It is important that the capacitors have an adequate AC rating, and if the components are mounted externally from the cabinet they should be well-insulated to avoid any risk of electric shock.

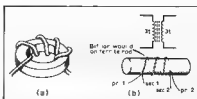
cartridge head from the arm will confirm whether or not this is the cause of the trouble. Ceramic or crystal cartridges will not suffer in this way. The solution is a small LC network installed either at the cartridge head or at the amplifier input, see Fig 8. Care should be taken to select as low a value of capacitor as practicable to avoid reducing the high frequency response. If the network is installed in the cartridge head, adjustment must be made to the arm counter-balance weight to maintain the correct tracking pressure (often less than 2 gm).



**Fig 8.** Cases of RF pickup via the coil of a magnetic cartridge can be solved by a simple LC network, installed either at the cartridge head or the input to the amplifier. The lowest possible value of capacitance should be chosen, to avoid any reduction in the HF response of the system.

VHF tuners are susceptible to two different forms of interference. The RF energy can either get into the front and of the tuner causing interference to radio programmes only, or alternatively it can be picked up on the VHF coaxial down lead and conveyed back to the amplifier via the chassis of the tuner to cause audio breakthrough. RF energy picked up on the outer coaxial braiding can be prevented from reaching the amplifier either by inserting a ferrite ring filter or using a 1:1 transformer, see Fig 9. Both are familiar devices for TVI sufferers. If, however, the interference is found to be tunable on the VHF tuner, or only present when it is switched on, then there is a strong possibility that the RF signal is being picked up on the FM aerial and a simple high-pass filter as used for TVI should clear the trouble. The need for the receiver to be provided with an aerial adequate for the area applies just as much to FM reception as it does to TV reception. Normally this means an FM band dipole in the loft or on the roof but in some areas, particularly where stereo reception is required, a three- or four-element beam is needed.

When dealing with cases of hi-fi interference it is essential to realise the importance of keeping all leads as short as possible and this applies in particular to speaker leads. A problem which has given the author some trouble in the past is the re-radiation of signals from one cable to another (TVI sufferers please note). If a lead has had to be filtered then keep it as far away as possible from other leads. Try moving the various connecting leads to the amplifier about in



**Fig 9.** RF pickup on the coaxial braiding of the lead from VHF tuner to amplifier can be cured by either a ferrite ring filter or a 1:1 transformer.

relation to one another and if a number of leads have been taped together try unwrapping the tape and separating them. Very often a speaker lead will be tacked along the skirting board with the mains cable and RF will be induced from one to the other. In the author's case a taping the TV aerial coax lead next to the speaker leads results in severe audio breakthrough while separating them a few inches completely clears the trouble. Never allow any excess cable to trail over the floor. It should either be shortened or coiled up and taped. The importance of this point cannot be over-emphasised.

## THE SOCIAL PROBLEM

There is virtually nothing that the amateur radio operator can do at the station and to prevent causing audio breakthrough apart from reducing power, unless he is prepared to change his mode of transmission. The latter option has been taken up by a number of VHF operators by switching from AM to FM. The A1 CW operator has the option to change to F1 but this is hardly likely to find much favour on the HF bands and is likely to confuse some operators who may tune to the space instead of the mark. The great difficulty in handling cases of interference is explaining to the sufferer that the fault is with his equipment and not the amateur's. No hard and fast rules can be given as each case is different and personalities and attitudes vary widely. Basically a combination of diplomacy and firmness is required.

The question of whether or not the job of curing the interference is to be undertaken by the amateur concerned is a matter of personal discretion. The author does not favour the idea of carrying out work involving the opening up of amp. cases. This is fine if the amplifier is one's own, but be very careful before deciding to carry out any work on a neighbour's equipment. Really it is a job to be carried out by a paid service engineer, not necessarily because the amateur involved is not capable of doing the work but because anything that goes wrong subsequently is likely to be blamed upon the amateur. If a neighbour does ask an amateur if he would be prepared to carry out the work he should think very carefully before deciding, and in doubt — refuse.

The question then arises as to who carries out the work. The listener is not likely to have the knowledge to carry out the work himself. He may also be unwilling to pay to have the work done for him if he considers the amateur at fault. Even if he does decide to employ the services of a paid engineer or dealer the time taken up in tracing the trouble is likely to be considerable and many dealers will just have

no idea where to start. A major portion of responsibility must be with the manufacturer who designed and made the equipment. In this respect the British Radio Corporation has been found to be particularly helpful. Unfortunately, many manufacturers seem surprising or disinterested in the shortcomings of their equipment although some do provide a certain amount of help and advice in the way of technical correspondence, circuits and perhaps a few components. We therefore find ourselves caught in a vicious circle with an embarrassed amateur and an unfortunate and possibly irate sufferer.

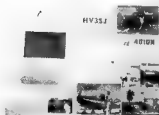
It is hoped that this article will encourage rather than deter amateurs trying to solve their audio breakthrough problems. During the 'fifties and sixties TVI has been a big problem, but through the persistent work of the RSGB local groups and individuals the problem has been overcome by many. Audio breakthrough looks like being an even bigger problem to be faced in the 'seventies. The solution is mainly with the manufacturers but it is up to the amateur movement as a whole to make them aware of the problem with a view to persuading them to raise the standards.

AM

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# EDUCATION NOTES

Brenda Edmonds, VK3KT  
FEDERAL EDUCATION OFFICER  
55 Baden Powell Drive Frankston, Vic 3199

Later this month a large number of potential amateurs will attempt the NAOCP exam, some for the first time, some after several previous attempts.

There is no shortage of advice on how to pass exams. There are two parts to each exam — knowing the answers, and being able to convince the examiner that you know the answers. It is only too easy in a multiple-choice exam to lose marks by carelessness or lack of adequate consideration.

Despite much comment and criticism, the DOC does not set out to 'get' the candidates, or to limit the number of passes, and there are no deliberate trick questions.

But there are some fairly searching questions on each paper, and this is quite in order. These questions are probably the ones which some candidates remember as too hard or unfair. Questions on each paper cover a range of levels of difficulty. This is not always realised by examinees before they sit their first exam. This is fair, and it is also fair that the AOCPP exam contains a higher proportion of the more difficult type than the Novice paper.

Consider these questions.

1. The unit of inductance is the:  
a. farad  
b. ohm  
c. henry  
d. volt

This is a perfectly straightforward, easy to read, basic question from the earliest section of the course — a bit like asking a teenager how many hours in a day. You either know the answer or you do not.

Try again.

2. The unit of capacitive reactance is the:  
a. farad  
b. ohm  
c. henry  
d. volt

This should be almost as simple — still straight knowledge of fact — but it is easy to misread 'capacitive reactance' as capacitance and so lose two marks in a valid, non-trick question.

Now consider

3. The frequency of a variable frequency oscillator is determined by the:  
a. supply voltage  
b. inductance and capacitance of the tuned circuits  
c. type of transistor used  
d. circuit design especially the amount of feedback provided

This question is 'harder' because it is more wordy, and all alternatives must be read even though the answer should be obvious once the complete question has been read.

These three questions could be used at either NAOCP or AOCPP level. The next applies to the AOCPP syllabus only.

4. In an Intermediate Frequency Amplifier using coupled tuned circuits the bandwidth may be altered by:

- a. changing the coupling between the circuits
- b. varying the collector current
- c. bypassing the emitter resistor
- d. screening the amplifier with non-metallic non-conducting shields

This question has a wordy stem and specific but unrelated terms, all of which must be given consideration. Most examinees would require time to think this out rather than knowing the answer straight away so would rate it as 'hard'.

5. Because the position of the sun controls the degree of ionisation of the D layer and ionisation affects radio propagation at high frequencies:

- a. the 3.5 MHz band is only useful for short range communication during the day
- b. the 3.5 MHz band is useful for very long distances at night
- c. the D layer does not affect propagation at 7 MHz
- d. the 1.8 MHz band is a very good long range daylight band

This is a fairly good example of a thorough y-bad question — too wordy, too many non-specifics ('short', 'long', 'good') and open to varying opinions. It needs to be read at least twice to work out what is actually being asked. This type of question appears in some sets of sample questions, and may be useful for practice for those who tend to read questions carelessly or too quickly. However it is unlikely to appear on an official paper.

Next month we will look at some question sets in which the problems are in working out the correct answer rather than in the quality (or faults) of the question wording.

To those sitting for the November exam: best of luck, and once again READ THE QUESTION! The latest sample paper is now available from me or from the Executive Office. Thanks to John VK3AF for the above questions.

Brenda VK3KT

## October's Best Photographs



The judges at AGFA-GEVAERT and Quadricolor Industries selected the cover photo. Waverley Offset Printing Group selected photo page 69.

# COMMONWEALTH CONTEST 1983

John Tutton VK3ZC

31 Benham Street, Hawthorn, Vic 3122

Come on you chaps, we're slipping!  
Fifty four VK entries in 1982 and only fifty three this year!

However, considering the propagation conditions which we thought were terrible, but in the light of what we know, were apparently better in this hemisphere than in most other Commonwealth areas, it was really a pretty good show.

Russ Coleston VK4XA more than made up for the small deficiency in our numbers by taking out first place in the Commonwealth with a 551 point margin over ZL1AIZ, the first winner from Eastern Australia since VK2DI in 1949 when Russ, as VK3XK, was placed 14th, and a 13th in 1948 when top place was gained by VK2EO. Our congratulations to Russ on a fine all band performance greatly enhanced by his magnificent operating procedures.

Eric Trebilcock BCRS195 made it a clean sweep for Australia by winning the Receiving Section by 360 points, a not unusual feat for him, the last occasion being in 1980.

## THE LEADERS WERE

1 VK4XA	4475	6 VK2GW	3385
2 ZL1AIZ	3924	7 VK3XB	3374
3 ZL2RY	3909	8 ZL2BR	3310
4 VK3BLN	3862	9 G3FXB	3221
5 6Y5HN	3828	10 VE5RA	3130

## RECEIVING SECTION

Eric Trebilcock BCRS195 1974

## AUSTRALIAN SCORES

1 VK4XA	4475	50 VK3VF	1555
2 VK3BLN	3862	51 VK7LZ	1529
6 VK2GW	3385	52 VK3BDH	1494
7 VK3XB	3374	54 VK3XK	1490
11 VK3MR	3087	55 VK2SU	1471
14 VK1CC	2943	56 VK3YK	1449
15 VK3AEW	2730	58 VK3JR	1309
17 VK2ZC	2583	59 VK3BKU	1303
18 VK3BA	2567	60 VK7RY	1295
19 VK2ACF	2540	61 VK6FS	1294
22 VK3CM	2426	63 VK4SF	1178
23 VK5GZ	2411	65 VK3FC	1148
25 VK3KF	2345	66 VK5FG	1132
30 VK6RZ	2010	68 VK3XU	1070
31 VK2DIO	1939	76 VK5BO	924
33 VK2BDU	1911	81 VK5KL	849
34 VK3AU	1864	83 VK3KS	810
35 VK7CH	1862	85 VK2GT	717
36 VK3ZC	1855	86 VK2DO	632
39 VK8IT	1802	88 VK7ZD	503
40 VK3WD	1784	90 VK3CT	493
41 VK3YD	1775	93 VK5RE	423
41 VK4UR	1775	94 VK2BDU	423
43 VK5BN	1687	100 VK5HO	313
44 VK6RU	1670	103 VK2IC	213
47 VK5DL	1582	104 VK7GB	150
49 VK2BAT	1557		

## Check Log VK3CG

## OTHER PACIFIC AREA RESULTS

2 ZL1AIZ	3924	67 ZL1AEZ	1108
3 ZL2RY	3909	71 ZL1MT	1003
8 ZL2BR	3310	79 ZL1BLJ	859
15 ZL1HV	2644	96 ZL2RM	368
26 9V1TL	2282		

Single band entries among the above were  
7 MHz VK7GB

## 14 MHz VK6FS Overseas leader, VK2IC VK4SF

The four man team event between VK areas again resulted in a win for Victoria. A table of results on this basis over the past three years is shown, with comparisons with other Commonwealth areas as defined in the rules from which four or more logs were received.

1983	1982	1981
VK3 13082	15813	10073
VK2 10467	13450	9407
VK5 6822	7760	3250
VK6 6776	9746	—
VK7 5199	9855	7098
VK4 —	—	—
G 10672	20384	17593
ZL1 8679	—	—
VE7 —	14187	—
VD —	6793	—

## AUSTRALIAN AWARDS

The Gold Medal for the leading VK entrant — Russ Coleston VK4XA.

The Silver Medallions for the leading State team — John Nakulski: VK3BLN, Ivor Stafford VK3XB, Snow Campbell VK3MR, Andy Doman VK3AEW

The Bronze Medal for the middle placed VK entrant — J T McMillan VK2BAT

## HOW THE LEADERS MADE THEIR SCORES

QSOs/BONUS AREAS per band 80 to 10 (claimed)

	3.5	7	14	21	28
VK4XA	30/20	74/25	139/45	49/34	30/24
ZL1AIZ	42/24	62/32	61/42	33/27	26/22
6Y5HN	9/8	45/25	166/52	47/32	16/9
G3FXB	19/19	55/39	111/54	5/5	—
VE5RA	1/1	40/23	45/30	4/31	46/30
VK3BLN	18/17	38/26	160/47	36/26	14/14
VK2GW	28/19	56/26	35/38	34/25	11/11

## ROUGH REMARKS

Despite some of the worst HF conditions for many years, the contest committee was pleased to receive an entry on par with 1981, i.e. somewhat down on last year, when record scores were achieved. Lower entries from the UK and VE were balanced by the increased entry from ZL and the maintenance of the splendid VK contingent.

Apart from call areas appearing among the entries (G3, VK5 5.7 VK1-B VO, Z2 ZB2 6Y5, 9J2, 9Y1) actively was also recorded from VE1, 2, 4, 8, ZL4, J6, T30, T32, VK9Y, VP2K, VU, ZK2, 306, 707 and 8P6, though some of these have made only one or two contacts. 9Y1 did not appear in logs for the first time we can remember.

A major solar disturbance sent the geomagnetic index from an average of nine or ten to a massive forty nine causing depressed muf, especially in the northern hemisphere. No transatlantic contacts were made on 21 or 28 MHz and there were only two minor openings from G to VK on 21 MHz. However, these bands provided fair if not outstanding conditions between VK/ZL and VE a significant feature of the results. The only compensation was 7MHz, where above-average traffic was recorded between G and VK/ZL on both paths.

The unusual conditions created a platform for the first win by a station in Eastern Australia (VK6HD won in 1971) since 1949. Russ Coleston, VK4XA, of Brisbane, broke the recent Canadian domination at

the top with 322 contacts and 153 bonuses, a clear victory. He receives the Senior Rose Bowl, perhaps deservedly going 'Down Under' this time after the work put in to upgrade the VK entry by John VK3ZC and Eric, BCRS195.

The Junior Rose Bowl goes to Peter Lake ZL1AIZ and is an outstanding achievement in that he does not have a beam antenna! He will be remembered as SW16Z in recent years. ZL2RY took third place, while 6Y5HN in his first CC was a welcome entrant making a most creditable score.

Top UK entrant, Al Slater, G3FXB, now has 11 straight wins of the Col Thomas Rose Bowl but as it is now 31 years since the last outright UK win, one can imagine G3FXB will be around shooting for the top spot for a while yet. Maybe he could use a little support — 32 UK entries with over 300 active is dismal! If the VKs can produce around 90 per cent entry, we can surely do as well. The committee is looking for a vastly increased home entry next year. If nothing else, at least send a check log so that we can identify the errors in those long lists of Gs worked.

The Receiving Rose Bowl has been regained by Eric Trebilcock BCRS195, at the expense of last year's winner 'Brad' Bradbury BRS1068. On 21 and 28MHz scores were: Treb 250 — Brad 0, which rather tells it! Both are to be congratulated on the accuracy of their logs.

Attention has been drawn to the new call sign arrangements in ZL, which appear to be similar to the USA, in that no change is mandatory when someone moves to another call area. The committee will consider the implications of this when framing next year's rules. On the subject of prefixes, some strange ones seem to have joined or rejoined the Commonwealth. Claimed for points were E1, ZS, 9K2 and, most bizarre of all, BY!

Many entrants are not checking their bonus claims or point additions. As a result some 30 per cent of logs had to be rescored prior to regular checking. Two scores show just a one point difference from the claims — this does not mean your logs received little attention! On the contrary both were upgraded in points only to fall back in checking, a tiresome addition to the workload.

Only one entrant asked for a slight change to the rules, so apparently everyone else is happy and indeed the committee do not contemplate any changes in the foreseeable future to this challenging event.

## Comments from entrants

Conditions Worst since 74 — G2OT since 45 — G3KSH over — G3UKY G5ND and others one to enter — RS44395, words fail me — GM30XC, absolutely stinking — G3HZL of G4HMS took 3h for two QSOs — Z23JO only heard one G VE5BAF no Eu heard — VE7BS basically atrocious — VE3JKZ, Sunday almost blank here in no-mans land — 9V1TL, who stole the ionosphere? — Z26CJ/G3TBK, but, good, especially SP to UK — ZL1AEZ (He was on 7MHz only), generally good this and VK7ZO

Placings Hard going this year. VK4XA 1m hoping for the middle placing — VK3YD Shall I be last again? — VK7ZO, bottom score? — G3TFF

Miscellany Sorry part time entry — at 75 this lad needs sleep — VK2ZC Eu callers go on my PFT list (23 of em) — VK6FS been jammed SE, and no one there — VO1AW my score is pretty lousy — ZL2BR the missed off 1000 points on his final addition! Checked all bands and no contest station outside the designated contest segments — RSS2868

Nearly all entrants expressed enjoyment of the event, despite the adverse propagation, including Don VK2BDU. Let him have the last word: "And didn't I have fun too! The antenna blew down the week before. Couldn't get it up because of the heat of the tin roof until Friday night, which I spent scrambling round the roof with a torch like a b. y. possum! Finished it Saturday morning then it all got was a couple of poms — pardon — G stations! Thanks for running the contest — all good fun. Thank you, Don, the spirit lives on."

G3XTJ

It is noted with deep regret that Ed Hodson G3XTJ who was in charge of this year's contest, died on 30th August just before the results were published in Radio Communications

## DEB 1984

1200 UTC 10th March to 1200 UTC 11th March. Rules in February AR

AR

## ULTIMATE MOBILE ANTENNA???

This photograph of an unusual mobile antenna was taken at the International Amateur Radio Gathering held in Frederichafen, Germany on 17-19 July 1983.

The antenna is built of aluminium and telescopes almost to roof level. From left to right are Mike Z56BUX, Henry GM4FXX, Bob VK2GZ and seated in front is Det of DL9DAQ

The Convent on attracted approximately 10 000 amateurs

Contributed by Bob, VK2GZ



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# VHF UHF - an expanding world

Eric Jamieson, VK5LP  
1 Oumns Road, Forrester, SA 5233

All times are Universal Co-ordinated Time,  
indicated as UTC

## AMATEUR BAND BEACONS

FREQ	CALLSIGN	LOCATION
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB35IX	Anglesey
50.035	ZB2VHF	Gibraltar
50.060	KH6EQI	Pearl Harbour
50.075	V56SIJ	Hong Kong
50.945	Z51SIX	South Africa
51.020	ZL1UHF	Auckland
52.013	P295IX	New Guinea
52.100	VK0AP	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.470	VK7RNT	Launceston
52.510	ZL2MHT	Mount Clime
144.000	VK4MTT	Mount Mowbray
144.020	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.475	VK1RTA	Canberra
144.480	VK8VF	Darwin
144.550	VK5RSE	Mount Gambier
144.600	VK6RTT	Carnarvon
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432.420	VK2RSY	Sydney
432.425	VK3RMB	Mount Bunninyong
432.440	VK4RBB	Brisbane

There are no changes to the beacon list this month, although I did hear on the grapevine that VK4RTL in Townsville had been destroyed by lightning. Perhaps someone nearer to that area than I might confirm or deny the report!

It appears also that W6IRT the beacon which used to be on 28.887 MHz during the peak of the sunspot cycle may now be on again, but nothing heard here.

Moves are afoot in VK5 to try and get the beacons back on the air. Mark VK5AVQ, who has been doing a lot of the work, dumped a chassis on me a few days ago with a request to build a suitable filter for the 6 metre beacon, or else! When that's done we are hopeful of trying the 6 metre beacon at its usual site on Mount Lofty and we would like it to be on its appointed "Band P an" frequency of 52.450 MHz which is quite a bit lower than its former frequency of 53.000 MHz.

Naturally we would also like to get the 2 metre beacon operating as well, but there are a number of problems associated with this

one. The previous beacon, if operated much lower than its former 144.800 MHz, caused serious desensitising and overload problems at a few locations in Adelaide. The sitting on Mount Lofty is a prime site for placing an enormous signal into Adelaide and for those operators living in areas where they had to look through the beacon to work to Melbourne and the South East had troubles.

One solution would be to have an antenna which attenuated the signal to the Adelaide area, but a problem then arises that Albany in WA, Adelaide and the beacon of Mount Lofty are all in line looking west, so the degree of attenuation to make the signal presentable in Adelaide wouldn't be heard very easily in Albany!

At this stage it seems desirable to put the beacon back again on its former frequency and run some tests in Adelaide to see what happens. A reduction of power to about 10 watts (30 watts previously) might help, and production ideas and techniques have changed considerably since the former beacons were built some twenty years ago, so the new generation beacons may not be the same problem. Whatever the outcome it is not the intention of those doing the job to prevent anyone from enjoying their hobby, but surely we can in return expect to receive a fair hearing and an offer to come part of the way themselves by anyone affected by ensuring the equipment in use is fair and reasonable and using antennas devoid of dry joints and other problems likely to be responsible for any "diode" action! More later.

## NEWS FROM NEW SOUTH WALES

VK2 seems to be featuring rather prominently lately judging by the degree of activity outlined in another letter from Gordon VK2ZAB who is amongst all those interesting contacts in that State.

He writes "Two metre SSB activity monitored from this QTH (Berowra Heights) appeared to be a bit quiet during August. I made some sixty contacts without Sydney stations, which is about three-fifths the normal rate! Some comments.

"Jack VK2ZQX at Gunnedah and Doug VK2XDH at Uralia put consistent and regular signals into Sydney. Less frequently during August Barry VK2KAY at Gunnedah and Don VK2ADY at Tamworth were also worked. These northern stations may be heard almost any week night on 144.2 MHz at 1030 UTC. Doug VK2XDH was at Armidale where his operations were restricted due to the presence of a Ch 5A transverter, his shift to Uralia has released him from this handicap.

"On 31/8 I was pleased to work Dallas VK2ECC at Yeltan which is very close to the Queensland border and had not been heard for some months. Whilst on VK4 Bill VK4LC is back from a trip overseas and will resume from Eagle Heights shortly. Hopefully this will

encourage VK4s in Brisbane to attempt to emulate Bill's success at working into Sydney on 2 metres.

"Other VK2 stations to the north are quiet on 2 metres although Tom VK2DDG at Byron Bay is known to be active, closer to Sydney Barry VK2BBA at Newcastle and Ray VK2BVQ at Toulkley were heard from here during August.

"The only station to the west heard during August was John VK2YEZ at Griffith and is audible in Sydney any time he cares to transmit that way. His 70 cm signal was also heard on one occasion he tried it, although two way contact was not possible due to my 10 watts PEP. The 2 x 4CX250B in rear under construction here will change that shortly. John's 80 watts on 70 cm has enabled him to make several.

"Jeff VK2EJJ at Wagga was worked several times on 2 m. Sometimes Jeff has only 10 watts PEP and still makes it into Sydney.

"In VK1, Ralph VK1RK and Glen VK1KAA can be heard on 2 m SSB frequently. Eddie VK1VP puts a good 70 cm signal into Sydney as well as his normal SSB on 2 m. Ian VK1ZIF is not favourably located for Sydney contacts but nevertheless was worked again during August when conditions are generally thought to be less than ideal. John VK1CJ doesn't have to wait for good conditions, his signal reached S9 on occasions during the month.

"On 30/8 John VK2ZMX in Cooma was 5 x 4 here. John's signal is always good in Sydney indicating the 2 m SSB path is not as conditions' restricted as some may think.

"Scheduled operations with Doug VK3UM on 2 metres continued throughout August. The time is now 2245 UTC on Saturday (local) and Sunday (local) mornings. Frequency 144.200. We made firm contacts on five occasions when signals were from 5 x 2 to 5 x 4 for periods ranging from two minutes to five minutes, down for several minutes then up again for a further five minutes. Signals are always detectable although on those occasions, when firm contact was not established, the norm is only occasional peaks, some words and syllables plus meteor pings. On 20/8 Brian VK2ZHT in Sydney also made contact with Doug again, VK1RK, VK1KAA and VK1VP also worked Doug on a few occasions.

"It seems to be that similar contacts should be possible between Sydney and Brisbane and I would like to hear from anyone there who may be interested in trying. Contacts between Sydney and Adelaide may be a bit to expect from the suspected propagation mode but nevertheless I would also like to try it on a regular basis with any VK5 who has the time and the equipment to try.

"Finally, country stations and VK1s often ask me what 2 m SSB activity there is in Sydney and the answer is that it varies. During August the following 2 m SSB stations



located in or near Sydney appear in my log: VK2ELS, VK2AAS, VK2EDB, VK2KBL, VK2YIF, VK2KBB, VK2ZRG, VK2YEW, VK2ZQA, VK2ZSC, VK2AYF, VK2ZRU, VK2ZHT and VK2NT. Not all are equipped to work long distances but looking at the list I believed about half of those are so equipped and of course there are many other stations so equipped who do not appear in my log for that period.

Thanks for another interesting letter Gordon and I hope there will be some stations in other States able to take up your offer of providing the Sydney end of the connection. I would dearly like to be able to do so myself but my working hours make this difficult. Are they any takers?

## THE VK2AMW MOONBOUNCE REPORT

Lyle VK2ALW in 'The Propagator' for September gives a lengthy report on the activities associated with the near completion of the relocations and overhaul of the dish antenna, with one of the sought after achievements at the moment being to have an EME contact with ZS5JUN. ZS5mbw before he dismantles his equipment for his move to South Africa later this year. The test was scheduled for 4th and 5th September—I have nothing concrete to report on results at the moment although I did hear from a source that an equipment breakdown had prevented contact being made. I hope I can report this to be wrong next month.

After the feedhorn had been installed, and the sighting telescope mounted on the dish structure, coincident with the true axis, the dish was used to track the Sun's movement optically. This test revealed an error of 0.5 degree of runout in Hour Angle for each hour of dish movement in the plane, and correction will require the whole dish structure to be rotated slightly in an anti-clockwise direction.

Three o/n noise receiving preamplifiers using GasFETs are installed and with everything temporary in place initial Sun noise checks were done. These show an initial 14 dB of Sun noise, to be improved later. Antenna rad at on angle tests were also done, using the Sun, and it was found the dish had a half power beamwidth of just under 2 degrees! This is equivalent to 38 dB dish gain!

Lyle says the transmitter is now delivering a measured output of 120 watts into a dummy load and is due to be installed in a waterproof mount at the dish site soon.

Best wishes to you Lyle VK2ALW and your team of helpers. We look forward to hearing more of your activities soon and to learn what contacts are being made.

## SIX METRES COUNTRIES LIST

Last month I mentioned reviving moves to start a six metre countries worked listing similar to that already contained in overseas magazines. I repeat it here as another reminder that if you have a ready sent in your list and it needs updating then by all means update if you have not yet sent in your list then what about doing so. The information needed is once more: For each contact Date, Time in UTC, Callsign, Country Mode, RST Report sent and received, and whether a QSL card or other confirmation has been received. If you are still awaiting confirmation, add that country to the list but indicate no QSL so far

as it will be shown in a separate column. Right, chaps, into it!

## OSCAR 10

When one wonders where all the 2 metre activity has disappeared to it is only necessary to have a look up the band around 145.9 MHz and there it is! A number of operators now have worked more than forty countries and many hundreds of contacts, and their voices must surely be feeling the strain. It has been of interest to me to note that it is possible to get signals out of the machine with much lower than anticipated signals going in, so it speaks well for the design of the equipment and the way it is working. Congratulations to all.

## LOCATOR

Last month I mentioned Steve VK5AIM had offered to underwrite an award or certificate for working stations located in the various locator squares assigned to this country. In an effort to make his offer work it seems desirable to outline in more detail what is involved and how you go about deciding where you live.

**HISTORY** For a number of years correspondence has passed around the world to various VHF managers (including me) in an effort to arrive at a suitable means of providing an identification in simple terms which would show where anyone on this earth lives. The idea of a 'QTH Locator' is not new, having been seen operating in West Germany some thirty years ago, and its use spread rapidly throughout Europe and North Africa. It was originally designed solely for European use where so many countries close together generally ensured its success. Contests of all kinds have been run based on locator squares, and a special listing appears periodically in European radio magazines showing the latest tally of locator squares worked by the highest scoring stations.

Much of the hard ground work must surely go to Folke Rasvall, SM5AGM, of Sweden, who is the DX Record Co-ordinator for Region 1, and who has finally seen the fruits

of his labours arrive at an apparent move to have a locator system adopted largely on a world wide basis. A letter was received from Folke in July, 1983 and this is the first chance I have had to incorporate its contents in this column. It reads:

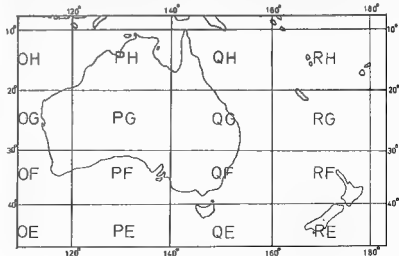
"The IARU Region 2 Conference was held 6th-11th June, 1983 at Cali, Colombia. The VHF Committee was chaired by ARRL (USA) Communications Manager W1XX, John Lindholm, and the following text was unanimously adopted:

"This Conference adopts the parallel use of (a) longitude and latitude for transmitting station location, and (b) the use of the proposed Region 1 (Maidenhead) Locator System for awards and contest purposes."

"We should note that the Region 3 addition 'when the time is appropriate' is not included, which means that Region 2 is the first region to finally adopt the Maidenhead Locator. My warmest thanks to all that have contributed to this excellent result."

The system is based upon the use of 2° x 1° blocks and it has been concluded that this is the only system likely to have any hope of world wide acceptance. It has evolved from an original proposal of SM5AGM and G4ANB and is often known as the Maidenhead System as it was at a place in England by that name where it was first tabled. The system has received guarded support by Reg 3, mainly I believe because of uncertainty on how the system works and that the Reg 3 areas are quite isolated by comparison with most other areas of the world. However the system does provide for our inclusion.

The system starts off by basically dividing the whole world into a series of squares of the sizes mentioned above each bearing two letters, the first refers to the longitude and the second the latitude. The accompanying map shows how Australia and New Zealand are situated in the world system. From this map you should be able to rapidly determine in which square you live unless you are a borderline case when you may have to be more careful. The remaining figures and letters of the system are arrived at according



The Longitude/Latitude Locator System Map.

to the accompanying tables which were originally published in "The Short Wave Magazine" from the UK and I have suitably modified them for use in Australia. I believe I am correct in what I am doing!

**3rd Character:** This will be a number determined by the number of degrees East Longitude you are, so consult the following chart

Degrees East	Third Character
110-111	4
112-113	3
114-115	2
116-117	1
118-119	0
120-121	9
122-123	8
124-125	7
126-127	6
128-129	5
130-131	4
132-133	3
134-135	2

**4th Character:** This also is a number and is the same as the second digit of your latitude eg if your latitude is 33°N then your second figure is a 3; if your latitude is 18°N then the figure is 8

These first four characters will be sufficient for the VUCC Awards and for most contests, and is probably as far as most stations need to go.

If for some reason you have to be more specific then two further characters can be obtained in the following manner:

**5th Character:** This is a letter and is determined by the number of minutes of east longitude for your location. If your number of degrees (in minutes) is an odd number, see Table A. If yours is an even number use Table B.

(A) Odd Longitude		(B) Even Longitude	
Minutes of East Longitude	6th Character	Minutes of East Longitude	6th Character
0-5	L	0-5	X
5-10	K	5-10	W
10-15	J	10-15	V
15-20	I	15-20	U
20-25	H	20-25	T
25-30	G	25-30	S
30-35	F	30-35	R
35-40	E	35-40	Q
40-45	D	40-45	P
45-50	C	45-50	O
50-55	B	50-55	N
55-60	A	55-60	M

**6th Character:** Take the number of minutes of latitude (follow the number of degrees) and consult the following chart

Minutes of South Latitude	5th Character	Minutes of South Latitude	5th Character
0-5	A	30-32.5	M
5-10	B	32.5-35	N
10-15	C	35-37.5	O
15-20	D	37.5-40	P
20-22.5	E	40-42.5	Q
22.5-25	F	42.5-45	R
25-27.5	G	45-47.5	S
27.5-30	H	47.5-50	T
30-32.5	I	50-52.5	U
32.5-35	J	52.5-55	V
35-37.5	K	55-57.5	W
37.5-40	L	57.5-60	X

**EXAMPLE:** The location of VK5LP is Longitude 138°54'21"2" and a Latitude of 34°

47°39'3" and my locator square is PF 04 NS and it is decided this way. The PF is easy by looking at the map and relating my 138° to the appropriate square. The 138 is used again to obtain the 3rd character from the table and falls between 138-139 so I now have 0. The fourth character is the same as the second digit of my latitude which is a 4 from 34°. So now I have the main requirements of my location, namely, to get my final two letters, I refer the 54° (minutes) of longitude to Table B because it is an even number and get the letter N. The last letter comes from the 6th Character Table, and being 47° (minutes) of latitude I get S. This then gives me a very accurate description of my location by being PF 04 NS and by working backwards you can determine readily where a station you have just worked might be located. It will seem a bit awkward for a while but it's pretty straight forward really. Mostly what concerns me at the moment is that I am PF 04.

Perhaps some club or organisation might like to sponsor an award for 100 Locator Squares Worked, with additions for every subsequent 100 squares worked. Are there any takers? If it doesn't do anything else it might get some activity on the bands once more, as there seems to be no reason why such awards could not be for 52, 144 and 432 MHz for starters!

Incidentally, although I have shown my location right down to parts of seconds, this is not necessary for the purposes of the Locator, for average use degrees and minutes is all that is required. If you need to go further you may be able to obtain the figures from good maps, especially the Lands Department maps, or you might be lucky enough to find on referring to the Department that your place is already listed in longitude and latitude.

## SIX METRES OVERSEAS

From "The World Above 50 MHz" in QST with Bill Tynan WX3O, for September 1983, comes news of the first successful 50 MHz two-way crossing of the Atlantic Ocean via Es from the USA to Europe. This followed in the wake of the first such contacts by Canadian stations (which I reported recently). On 1st July WA1OUB in New Hampshire began hearing TV buzz in the band starting as early as 1145 UTC. Bob said 10 metres was dead at the time. At 1840 he noticed European 10 metre beacons coming in and a CQ on 6 metres brought a crossband QSO with SM6PU at 1848. At 1850 G4GLT was worked via the same route. This was followed by GM4COK at 1900 and DF2AO at 1909. Repeat 6 to 10 contacts with SM6PU were made at 1920 and 2033. At 2220 and 2223 WA1OUB crossbanded with GM3DOD and G4GLT. The latter told Bob to listen for him in seven minutes on 50.096. Bob began calling at 2228 and stood by at exactly 2230. Unfortunately he did not hear G4GLT but there was GJ3YHU calling him with 529 signals. WA1OUB received 559 and what is probably the first 50 MHz two-way Es contact between the US and the UK went into the VHF record books. Bob heard no other signals from across the pond, but a report from G5KW at Lands End, Cornwall, notes reception of WA1OUB on 1/7/83. Ken, G5KW, was disappointed not to have been heard in the US as this would have been country number 10, since receiving one of the forty off-TV hours 6 metre permits in

February. His other countries are G, GW, GM, GJ, GU, ZB2, and I.

The second such contact was between KA1PE and GI3ZSC at 2235. The GB3SIX beacon on 50.018 and the ZB2VHF beacon on 50.035 were being monitored between 2100 and 2229 prior to this contact. Once again this shows the great advantage of having beacons in strategic places! So far the main contacts seem to be limited in the main to 10 to 6 crossband contacts, with C12EE being included. It will be interesting to see what happens in the next summer Es season in that hemisphere.

Also interesting to note in "QST" that the DX-pedition by W6JKW to the Cocos Islands only netted forty six metre contacts all from Florida to Maine and then only on 15th June. Rest of the time was spent on HF and 2 metres EME!

## VHF PIONEER: W2AZL

From "QST" comes news of the passing of Carl Scheideiter W2AZL, who became famous through the 1950s and 1960s for his 2 metre converter design which for a long time was virtually a standard of comparison for such converters. Carl contributed much to the improvement to the state of the art at VHF. He was active on 50, 144, 432 MHz as well as 144 MHz EME.

Carl passed away on 18th July after losing a battle to cancer. I am sure I speak for the VK VHF fraternity in offering condolences to his widow Agnes.

## VK2AMW EME STATION AGAIN

In today's mail I received a note from Murray VK2MY Secretary of the Iliawarra Amateur Radio Society, and enclosing last minute news of the VK2AMW EME tests with Z25JJ in Zimbabwe and mentioned earlier in this month's column.

It reads: "After a construction period of over twelve months, following the relocation of the 9 metre diameter dish of the University of Wollongong in mid 1982, a successful EME test was conducted by the Moonbounce Group, headed by Lyle Patson VK2ALU, on Saturday 10th September, 1983.

"The test was arranged between the IARS station VK2AMW and Z25JJ, operated by Peter Carey in Harare, capital of Zimbabwe. It required a light construction programme at VK2AMW as Z25JJ was dismantling his dish starting on 11th September, prior to a move of QTH to South Africa.

"Preliminary tests with Z25JJ on the previous weekend, 4th and 5th September were prevented by transmitter power amplifier stability problems and a short in a coaxial relay in the receiving system, but the tests on the 10th September, which was carried out between 0700 and 0830 UTC resulted in a confirmed contact.

"The project team worked under some difficulty during the day due to rainstorms, which required hasty covering up of outdoor equipment not yet made waterproof. By 1800 EAST our first echoes were being received at approx 3 dB above noise level, with visual tracking of the moon. Initial contact with Z25JJ was delayed for approx half an hour after the test was commenced due to frequency counter readout at VK2AMW being approx 15 kHz low at 1296 MHz.



# MAGAZINE REVIEW

Roy Hartkopf, VK3AOH

34 Toolangi Road, A phington, Vic 3078

(G) General (C) Constructional (P) Practical without detailed constructional information (T) Theoretical (N) Of particular interest to the Novice

**AMSAT-UK OSCAR NEWS, AUGUST 1983** NO 43 Special Oscar 10 handbook Details of frequencies band plans orbits and data transmission standards

**73 MAGAZINE, SEPTEMBER 1983.** Packet Radio Revolution (G) Increasing your QSOs (N) Simple microwave antenna. (P)

**HAM RADIO, JULY 1983** Packet Radio Part 1 (G) Modular two band receiver (C). **CG, JULY 1983** Special VHF Issue

**RADIO COMMUNICATION, AUGUST 1983** Digital SWR-Power-Peak Meter Part 1 (C)

**CG, AUGUST 1983** Special Antenna Issue.

**QST, JULY 1983.** AMTOR (New RTTY Mode) (G) Spread Spectrum Applications (G) Salvaged Components — A God Mine (G) F. ters. (P)

**1983-1984 AUSTRALIAN CALLBOOK** Doubtless this will be mentioned at length in other places but I would like to praise two features First a comprehensive list of all types of coaxial and twin banded transmission lines and second the provision of space after call sign lists etc for adding new information, notes and alterations. Altogether a big improvement on previous issues

Since writing this column I have received a number of letters from country readers asking for information re articles etc I have always felt that those of us who live in the cities get far more for our subscription access to the rooms and facilities, library, data, disposals and so on and I feel it is up to us to do whatever we can to help the country amateurs. So if you want information, some different component, some disposal item if it turns out we're it and I'll do my very best to help. Please enclose a SAE appropriate to the request (a large one for data sheets etc)

AM

"When all was peaked up signals were 'O' copy both ways. 225J reported via an HF link established via VK2CAG, that our EME signals were 6 dB above noise and good copy. 225J's signals also built up to 5-6 dB above noise which was very satisfactory in view of the equipment not yet all peaked up at this end — although the 10 metre diamond dish and 400 watts at the other end helped!"

As far as is known this is the first 1296 MHz EME contact from NSW and the last hour or so of proceedings were put on to record by Mike VK2DFK with his video equipment.

"We anticipate the equipment will be completed as a permanent installation over the next 4 to 6 weeks after which contacts are looked forward to with the small group of EME operators on 1296 MHz in various parts of the world. Experiments are also planned with antenna feed systems once a high power permit is obtained and some limited tropo-propagation experiments may also be possible using lower power levels."

Congratulations to the Illawarra team for their efforts and the reward they received in meeting a 225J deadline and having that very spec. a contact with Peter.

And it did seem my spies were correct in saying contact had not been made on the weekend of 4th-5th September but I am glad it was completed a week later.

## BELGIUM TO LOSE UHF BANDS

From "The Shortwave Magazine" for August 1983, per kind favour Steve VK5AIM, comes news of a serious situation developing in Belgium when, at a meeting on 24/6, the amateur representatives were shattered to learn it was proposed to withdraw all but the 434-438 MHz part of the 70 cm band, and to take away all amateur bands from 1.24 to 5.85 GHz.

"What has, understandably, incensed Belgian VHFers even more, is that it was proposed to bring these severe restrictions into law by 15th July, leaving no time for them to prepare a case for a fight... This is a very serious matter since, if the Belgian authorities get away with it, then those in other western European and NATO countries might consider the same trick if faced with demands for more UHF allocations. Another blow is a power limit of 30 watts on the remaining part of the 70 cm band, and on 2 metres there were to be power restrictions, thus rubbing further salt into the wounds."

At the 1979 WARC Conference the band 430 to 440 MHz was allocated to Region 1 on a shared basis, equally, with amateurs and radio allocation systems. It seems no footnotes were added at the time by Belgium.

## OF GENERAL INTEREST

By the time you read this we will be starting to get into the early Es openings on 6 metres. May I urge you all to continue to use 52 to 54 MHz for the Es openings we normally get through the summer months and reserve the 50 to 50.15 MHz segment for true DX operating (outside TV hours for Channel 0 of course). I understand there is every likelihood the Ross Hu Contest will be conducted above 52 MHz which is a good thing. It is most vital during the next twelve months or so for us to do the right thing in regard to the new part of the band if we ever hope to have an increased usage of that portion. Thoughtless

use causing Ch 0 interference will be seen by the TV stations as being irresponsible and they will lobby all the harder to have the privilege removed once and for all. Therefore, please play the game according to the rules, remember, a lot of the former exotic stations from the USA and Pacific areas were heard on 50 MHz from about 2100 to 2400 and on to 0100 or thereabouts, and these times will be outside TV hours. If 50 MHz is not cluttered up with Es operating stations in VK there will be many people who will get their first chance to reply legally to the overseas stations.

If you want to do all your operating on 50 MHz just think about it this way. If everyone did this, we would probably lose 52 to 54 MHz as no longer being needed. Then if the TV stations become snouted because we are causing interference we will also lose 50 MHz. Where do we go then? We may finish up without any spectrum for 6 metre operation, and that would be an even greater tragedy!

For the closing thought for the month I draw on a list sent to me some time ago by Philip VK3YAZ. "He who thinks by the mch, and talks by the yard, should be kicked by the foot" and "Even a short pencil is more reliable than the longest memory." Good DXing this summer, and hope to hear you on the bands. 73 The Voice in the Hills. AM

## STRAYS

Basic human nature changes little it seems. Looking back through magazines published a half century ago, the same endemic gripes are well to the fore. Here are just a few: (1) Amateurs whose operating behaviour besmirches our image. (2) Those who won't QSL. (3) Piracy. (4) The use of excess power — and so on.

The "Wireless" Magazine TELERADIO, of May 25th 1935, in its pages devoted to amateurs has this comment under a title HAMS — MOCK AND REAL:

"There are decent amateurs on the air and others who are not... the operator who asks for reports and then does not reply with his QSL card is not playing the game."

Under another heading of NZ HAMS is this query:

"Have any VK DXers had any experience with ZLs not replying or sending QSLs when NZ stamps or Imperial Reply Coupons have been enclosed?"

(I guess the Kiwis could say the same about some VKs of that period — AI, VK4SS).

On the subject of Piracy, many OOTs, now that age is upon them, confess that they 'tested' their gear on air before gaining their licence. The international rarities went one better — they congregated outside the 20 m band, say 13.995 MHz, so they could be better heard. However, most OOTs were then striving to obtain a ticket. Today, we have Piracy for Piracy's Sake, in lots of cases.

A Shaws Smith, VK4SS

AM

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\* Education Technology & Services see page 81 October 1981 issue of Ham Radio Magazine

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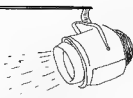
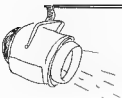
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# SPOTLIGHT ON SWLing

Robin Harwood, VK7RH  
5 Hean Street, Launceston, Tas 7250



On the 31st August, 1983, a Korean Boeing 747 Jumbo jet was en route from Anchorage, Alaska to Seoul, South Korea with 269 passengers and crew aboard. This flight appeared to be normal judging by reports from the plane at several intervals along the route by air traffic controllers at the two guard stations at Tokyo and Anchorage. The first hint of trouble came when the Jumbo failed to report at a pre-determined plot, triggering a massive air-sea rescue. With no signs of wreckage being found along the pre-planned route, the controllers began to suspect that the plane had veered off course. Initial enquiries to the Soviet Union elicited that they had no knowledge of the Korean flight. But records by American and Japanese military intelligence, when processed, provided monitored traffic of the Soviet air defence communications, which gave a different light to the picture.

The plane had strayed off its planned course and had indeed veered into Soviet territory and had in fact strayed over an extremely sensitive area. Soviet air defence command on the ground assumed it was a spy flight. American military reconnaissance aircraft had been observed on Soviet radar. When the Jumbo failed to respond to interceptor fighters scrambled to investigate the plane, the order was apparently given to fire an air to air missile. The plane was destroyed along with the 269 people on board.

This tragic incident has caused a very sharp escalation in tension between the United States and the USSR, especially after the Americans divulged what happened to the Korean flight, revealing the contents of their electronic intelligence intercepts. The world naturally was stunned. At once, a war of words — accusations, denunciations and statements — were spinning across the frequency spectrum from a radio des. The Voice of America as well as their "candestine" sender Radio Free Europe/Radio Liberty increased the programme output, particularly in Russian. Only a few weeks earlier the two organisations were fighting budget cutbacks with Congressional committees. Funds were very quickly appropriated allowing the "Voices" to increase the number of programme hours in Eastern bloc languages.

It wasn't too long either before the huge array of jammers caught up with the extended hours of the various stations, attempting to drown out the programmes. Unfortunately, many other international and domestic stations broadcasting on shortwave, not directly bearing programmes to that area, suffered interference to the signals from the spillover from these jammers. Those listeners, particularly in Europe, do find it extremely difficult to pick out their desired programmes

among the buzzsaws or distorted audio from narrow band FM signals. These jammers are found on several points within the allocated band.

This makes it very hard for the general listener to shortwave, as the majority of models would not have very good selectivity. The presence of these jammers on several points within a sub-band, would render it useless to those types of models.

Naturally, broadcasters have started using new channels outside those normally allocated for international broadcasts, in an effort to escape the jammers. Unfortunately the jammers follow suit creating a vicious circle. On the 4th September, for example, when stations made various frequency alterations to take account of propagation vagaries, it should have been orderly. But within days it became apparent that some stations would have to hop about to escape the electronic pollution.

One band of frequencies under threat, are those allocated to the amateur service. I will not be surprised to see quite a dramatic increase in the amount or number of stations intruding into our amateur allocations. Recently, I received a note from Jim Davis, VK7OW, Intruder Watch Co-ordinator for this State, pleading for reports from this region on the ever-increasing amount of intruders. Along with the note and logsheets was a summary of the intruders logged for the month of July.

I have commenced logging intruders and do urge other amateurs and SWLs to do likewise to help our IW co-ordinators to reduce the amount of traffic from these interlopers on our bands. You will find them listed in the 1983 Callbook or elsewhere in this magazine.

And talking of the Callbook, the 1983 issue is now available from your local division. It is perhaps the best VK callbook I have seen. Special thanks are due to the WIA Publications Committee for collating it so admirably. I would, however, like to correct an address of one of the Clubs in the SWL section. The address of "DX Australia" to where you can direct enquiries is: "DX Australia", PO Box 285, Mt Waverley, Vic 3149. I believe that the subscription is \$15.00 per annum within Australia and \$25.00 elsewhere.

There have been changes of personnel at two of the Clubs within Australia. Peter Bunn, well-known DX columnist and broadcaster, has taken over as Chairman of the Australian Radio DX Club from Rob Wagner. Bob Padula is still Executive Secretary while other new committee members have also been included. The Southern Cross DX Club has also regained Keith Barton as President.

Until fairly recently, Keith was secretary of

that Club. We wish them both well in their respective positions.

One of the new sections in the "ADXX" — the monthly newsletter of the Australian Radio DX Club, is devoted to clandestine broadcasts. This bi-monthly section contains details of the ever increasing number of clandestine stations. Some of these clandestine stations have been observed on, or very close to, 7 MHz CW portion of the band. Most of these are located in Central America and/or the Caribbean region.

Two very interesting clandestine stations at the particular moment are on the Korean peninsula. Both of them are broadcasting propaganda to each other. Neither are they officially registered or broadcasting within the portion specified for same. Radio "Echo of Hope" is presumably in South Korea and has been heard on 6.348 MHz at 1000 UTC, naturally in Korean. WH is the other station called the "Voice of the Revolutionary Reunification Party" claims to be in Seoul. South Korea, it is located within North Korea. It is on 4.119 MHz variable and is pretty close to an international maritime distress communication channel of 4.125 MHz. It is in Korean naturally, but also is heard in English at 1400 UTC. However, if the direction varies hard to follow, I have heard recently another presumed clandestine on 5.958.9 MHz also in Korean but it signs off at 0400 approximately. All indications so far point to the station being South Korean in origin.

Well that is all for this month. Until next time, the best of 73 and good listening.

Robin VK7RH  
AR

## OVERHEARD ON THE BUNDABERG REPEATER



A prominent amateur who has a TV service business was heard on the Bundaberg Repeater telling two friends about a demonstration of a new stretcher he had seen at the local Ambulance Brigade. He saw that a similar product had all the possibilities of being adapted to the carrying of TV sets from the customer's home to the van and into the workshop for service making his life easier. At this point a fourth amateur broke in to cap the story off by saying "I bet you are going to tell us now that when the sets are returned to the owners, they are well enough to get out of the van and walk into the house on their own." Oh well!

Keith H. Hawfield, VK4APQ

RTTY PIC COURTESY STEVE W3BQ



# HERE'S RTTY!

Bruce Hannaford, VK5XI  
57 Haydown Road, Elizabeth Grove, SA 5112

## CODE READERS and CODE CONVERTERS

There are now a considerable number of these units available in Australia and these are interesting to RTTY and CW operators. At the date of writing the price of a read only unit is about \$300 and a Reader Converter unit about \$630. The small size and weight of these units plus the fact that no bulky VDU is needed makes them attractive for many applications such as portable work.

### CODE READERS

Briefly the display is similar to the LED readout of a digital frequency counter except that letters, figures and punctuation marks are displayed. The readout is a single line so receipt on as a new character appears at the right side of the line a character on the left of the line disappears. In effect the display moves slowly from right to left giving plenty of time to read what is displayed. A good example of such a reader is the Advanced Electronic Applications (AEA) MBA-RC Code Reader. This unit features a thirty two character vacuum fluorescent display, large big characters slow for minimum eye fatigue after long periods of viewing. This thirty two character display is a vast improvement over similar readers with only six to ten character displays.

Input signals can be from receiver audio, from TTL level switch or from a hand key or keyer. The unit will copy Morse, Baudot and ASCII Codes at all normal speeds. There is automatic CW speed following and the received WPM can be displayed if you so desire. There are filters for 800 Hz CW and for 170 or 425 shift RTTY. I quote the following specifications from the AEA Catalogue.

**Display:** Blue thirty two character vacuum fluorescent with 0.29 inch high 14 segment characters.

**Modes:** Morse code Baudot RTTY, ASCII RTTY

**Speed:** Automatically tracks Morse code from 3 WPM to 99 WPM. Baudot RTTY speeds are: 60 WPM, 67 WPM, 75 WPM, and 100 WPM. ASCII RTTY speed 110 WPM.

**Filtering:** 100 Hz CW filter centred at approximately 800 Hz. Narrow shift RTTY filter factory tuned to 970 Hz and 800 Hz (170 Hz shift). Wide shift dual RTTY filter factory tuned to 1225 Hz and 800 Hz (425 Hz shift).

RTTY filters can be easily tuned for other desired shifts. Changing capacitors will allow for tuning higher frequency AFSK tones.

**Input Impedance:** Will work with virtually any receiver or audio output amplifier impedance.

**Integrated Circuits:** 17 plus one micro-computer.

**Power Requirements:** 13 VDC  $\pm$  2 VDC at 500 mA.

**Dimensions:** 8 1/4 x 5 1/4 x 2 inches.

**Net Weight:** Approximately 2 lbs.

**Specifications Subject to Change Without Notice or Obligation.**

### READER CONVERTER

These units not only read and display incoming signals as in the read only unit, but can additionally, at the same time, convert the incoming mode into a different outgoing mode. eg: A CW operator using such a unit could communicate using two way RTTY. The unit would display the received RTTY and the CW operator sending CW into the unit could switch it's output to Baudot RTTY and his CW would be sent out as RTTY. Or vice versa a RTTY operator could communicate in CW the reader displaying the CW coming in and his Baudot RTTY keyboard signals being converted into outgoing CW signals. A good example of such a unit is the MBA-RC Reader Code Converter by AEA.

I quote the MBA-RC specifications from the AEA Catalogue.

### RECEIVE

**Display:** Blue thirty two character vacuum fluorescent with 0.29 inch high 14 segment characters.

**Modes:** Morse code, Baudot RTTY, ASCII RTTY

**Speed:** Automatically tracks Morse code from 3 to 80+ WPM. Baudot RTTY speeds 60, 67, 75 100 WPM. ASCII RTTY 110 Baud.

**Filtering:** Four Pole variable CW filter front panel tuned from 900 to 950 Hz. Can also be used for SPACE ONLY RTTY tuning. RTTY 170 Hz (fixed) (2125 Mark/2295 Space) Reverse/Normal switch RTTY Variable 100 to 1000 Hz shift (2125 Mark/2295-3125 space).

**Input Impedance:** Approximately 5K ohms, will work with virtually any receiver or audio amplifier output impedance.

**Printer Outputs:** Serial (current loop) Baudot such as teletype models 15, 19, 28 and 32. Serial current loop ASCII such as teletype models 33 and 35 Parallel ASCII such as EPSON and CENTRONICS.

**Automatic CR/LF:** (defeatable) after first space following 64 characters or after 72 continuous characters (word wrap around).

**USOS:** Automatic down shift on space (defeatable). Anti-Space: Mark-hold after continuous space tone.

### TRANSMIT

**Modes:** Morse code, Baudot RTTY, ASCII

**RTTY Output Speed:** Morse 3-99 WPM. Baudot RTTY 60, 67, 75, 100 WPM. ASCII RTTY 110 Baud.

**Keying Outputs:** CW, Cathode Keyed (to 200 mA) grid block (to -300 volts) or solid state transmitters.

**RTTY:** Photo-isolated contact closure TTL level transistor switch, or two tone AFSK 170 Hz shift (2125 Mark/2295 Space), 850 Hz shift (2125 Mark/2975 Space).

**Inputs:** Morse, from hand key, bug keyer, memory keyer, Morse keyboard. RTTY Two tone ASCII or Baudot AFSK. Parallel (TTL compatible) or serial ASCII or serial Baudot.

**Automatic CR/LF:** (switchable) after first space following 64 characters or after 72 continuous characters.

**USOS:** Down shift on space (switchable).

**Auto ID:** Less than 50 Hz Morse shift from programmable ID memory. Can also be used for standard Morse, Baudot or ASCII message transmissions.

### GENERAL

**Power Requirements:** 13 VDC  $\pm$  2 VDC at 1.2 amps.

**Integrated Circuits:** 43 IC's plus two custom AEA microcomputers with copywritten firmwars.

**Size:** 8 1/4 W x 4 1/4 H x 7 inches D.

**Weight:** Approximately 5 lbs.

**Specifications subject to change without notice or obligation.**

Obviously these are very interesting items and I wish to thank Hy-Tech Distributors for their assistance. Inquiries re these units can be sent to Hy-Tech Distributors, PO Box 136, Archerfield, QLD 4108.

After I have had time for considerable on air testing with these units I will give some further comments re operators convenience etc.

## THE NEW CALL BOOK

The 1983/84 Call Book is an excellent addition and is of great interest to RTTY operators. For the first time RTTY is mentioned in the WIA Gentlemen's Agreement band plans (Page 122).

The old term 'CW Only' has now been replaced by 'Narrow-band Modes', thus as RTTY and CW are now grouped together as narrow-band modes we now officially have the same privileges that CW operators have had. (However in some bands there is a 'CW Telegraphy' segment for Novices that should be respected).

Narrow-band modes have an exclusive segment in the MF and all HF bands that phone etc must keep clear of. Additionally narrow-band modes can operate anywhere in any of these bands.

There have been many suggested RTTY frequencies mentioned in recent months however we should remember these are only suggestions and that the WIA have now clearly stated provisional RTTY frequencies as being stated on page 122 in the 1983/84 Call Book.

I strongly suggest that RTTY ops should normally stick to these provisional frequencies unless there is a very good reason for operating elsewhere in the band. If we constantly use these frequencies other mode ops will sooner or later accept them as RTTY frequencies but not so if we spend most of our time elsewhere in the bands. I suggest that the only excuse for not using these provisional frequencies would be to contact DX RTTY stations having different RTTY segments to us or to work cross mode eg RTTY to phone, or in the case of being QRM'ed by other modes in our own frequencies we need to move elsewhere. RTTY ops have been screaming for a long time for the WIA to guide them as to what frequencies should be stuck to them as much as possible and make the system work to the benefit of all concerned.

For those who have not got the 1983/84 Call Book the following are the provisional RTTY frequencies in MHz listing the centre frequencies which are extended both  $\pm 5$  kHz making each segment 10 kHz wide

3.520 7.045 10.145, 14.090 18.105, 21.090, 24.925 and 28.090

RTTY ops should particularly note the 3.520 frequency and give Novices a fair go, phone ops should especially note the 7.045 frequency and normally use some of those higher frequencies that now extend up to 7.300.

#### A HANDY LOOP SUPPLY RESISTOR

One day I was vainly looking for a suitable high wattage resistor for a loop supply to use with a Siemens machine. It dawned on me that a suitable wattage 240V lamp would do the trick. With 110V AC rectified by a single diode followed by a 16 mF capacitor for filtering and this followed by a 15 watt 240 V lamp an almost exact 40 mA flowed in the loop circuit. Small 15 W pilot lamps are probably best to use, I tried three of them and always got about 40 mA loop current. The dimly glowing lamp is also a good indication that normal loop current is flowing or that keying is taking place etc.

#### 45.45 OR 50 BAUDS?

There is a move in ZL to standardise 50 Bauds for amateur RTTY. There are about 10 ZL Selcal stations that I know of using 50

Bauds and many ZL simplex contacts are being made using 50 Bauds. I believe it is unfortunate that 45.45 was chosen in the first place and this was no doubt due to FCC Regulations, as presently the vast majority of commercial RTTY is at 50 Bauds. It would be nice if there was some painless way to change to 50 but at present I don't see how this can be done especially since the FCC change their ideas on this matter. It seems rather hopeless for ZL or VK to try and initiate a change unless the FCC in America permit the change to be made there.

#### WORLD PRESS SERVICES FREQUENCIES

The book by this name is just the thing for RTTY printing news hounds. There are three listings in the book: 1. By order of time in UTC, 2. By order of frequency, 3. By country of origin and press service involved. Transmission speeds and shift are also listed making this a very handy, easy to use listing of English transmissions. I obtained my copy from Hy-Tech Distributors, address as above. Well that's all for this month.

73 from Bruce VK5XI

■

## INTRUDER WATCH



With the current sunspot cycle on the way down, more and more amateurs are turning to the lower frequencies to look for DX. The 40 metre band has seen some interesting DX pop up from time to time, if one is prepared to listen. However, the most significant thing to be noted, as one listens around this band is the domination of the band by broadcast intruders. The 40 metre band, segment 7.0 to 7.1 MHz is listed as 'Primary to the Amateur Service', very amusing apparently the amateur population is well aware of this fact, but certainly as the following information will show, the broadcasters of the world don't seem to display the same expertise on their authorised band limitations.

A random check on ONE DAY showed up the following bad news:

The date was the 13th July, 1983, between 1900 and 1925 UTC. All intruders appearing between 7.0 and 7.1 MHz. THE SECTION of the band designated EXCLUSIVE TO AMATEURS.

Eleven (11) intruders present — all broadcasters.

Now, assuming 27 kHz each side of centre frequency gives 54 kHz occupation by unauthorised stations. However, as one of these stations is Radio Moscow on 7.1 MHz, with LSB only in the amateur section, we are left with a total of 56.7 kHz occupied by intruders.

Seven (7) of these intruders were suffering jamming signals and as most jammers are at least 37 kHz wide (each side of centre frequency), we move our figure of un-useable band-space up to 70 kHz.

As the amateur segment is 100 kHz, this then represents 70 % of the entire PRIMARY amateur designated band-space! Now, I ask; just who is the PRIMARY Service in this

segment of 40 metres? It would appear to be the broadcast service. Certainly, in practice, it comes out this way, I, personally, am not happy with this state of affairs, and will continue to complain, via the Intruder Watch, to the DOC and through other avenues. I know others feel the same way, and are in fact registering their complaints monthly.

To take all this a step further — not only do intruders arbitrarily use OUR frequencies, but now, it appears, they are attempting to push us aside altogether. Example: On 31st July, 1983, two amateur stations were having a QSO on 14.171 MHz, on SSB. The USSR Intruder 'UMS', a Russian Naval station, came up with RTTY traffic, as he is wont to do (also on 21.032 MHz) and apparently was being caused some problems by the two AMATEUR stations (one a 'W').

After about five minutes, a jamming signal commenced (carrier modulated by two audio tones), and set about jamming the amateur operators. This type of jammer is in common use by the USSR, incidentally. After about another five minutes, the two amateur stations were successfully jammed out, and disappeared, whereupon the intruder 'UMS' came back up with his RTTY traffic, and got his message through. Now, if this is not cause for complaint, what is? I repeat the advice I have given in previous columns: if you are QRM'ed by intruders, stick to your frequency — let them suffer YOUR QRM. They are the ones that shouldn't be there. This is an EXCLUSIVE amateur frequencies ONLY, of course.

I think that most amateurs would not be pushed off their frequency by another amateur, and most decidedly would have something to say to any station which attempted to push them off. Why, then, move

aside for intruder stations, WHICH DON'T EVEN HAVE THE RIGHT TO BE ON THE FREQUENCY IN THE FIRST PLACE? Don't QSY for intruders! I certainly hope that I won't have any more such reports of being on the pass on, but will be very surprised if we see any change in current intruder habits if we meekly step aside and let them blithely. Many thanks to Co in VK4AKX, for his sterling work with the Intruder Watch and especially for some of the information regarding the above reports.

Col is one of the many amateurs who wish to pursue his hobby quietly, without any fuss and certainly without being hassled by illegal operations. We amateurs are bound by Regulation, as well as our own moral attitudes to operate on-air as responsible members of a world-wide fraternity of Amateur Radio Operators and ask no more than to be treated with the same consideration that we show others. Intruders, in my book, are not worthy of any consideration on, and should be reported for their behaviour. If they don't know how to behave, let us tell them.

If you do manage to find a clear spot between the intruders, I wish you good DX, and see you next month.

## BUYING, SELLING or WANTING?

Check HAMADS first  
Eight lines free to all WIA Members.



# AMSAT AUSTRALIA

Colin Hurst, VK5HI

8 Arndell Road Salisbury Park, SA 5109

## NATIONAL CO-ORDINATOR

Graham Patchell VK5AGR

## INFORMATION NETS

AMSAT AUSTRALIA

Control VK5AGR

Amateur Check-in 0945 UTC Sunday

Bulletin Commences 1000 UTC

Winter 3 680 MHz

Summer 7 064 MHz

AMSAT PACIFIC

Control JA1ANG

1100 UTC Sunday 14 035 MHz

AMSAT SW PACIFIC

Control W6CG

2200 UTC Saturday 21 280 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT AUSTRALIA net. This information is also included in some WIA Divisional Broadcasts

## ACKNOWLEDGEMENTS

Contributions were received this month from Bob VK3ZBB and appreciation is extended to AMSAT Telemail and the UOSAT Bulletin Board for excerpts included in this column.

## AMSAT-OSCAR-10

Oscar 10 continues to perform excellently. In recent weeks the activity has increased significantly and contacts as far west as Ireland and as far east as the USA East Coast, have been made by many Australian amateurs. Due to the orbital parameters this area of communication is not available at all times, as the spacecraft drifts slowly eastwards on a day by day basis. At this stage it would appear that the drift is occurring at an approximate nineteen day cycle. An area of concern being expressed by AMSAT is the continued use of HIGH POWER by some operators. Although these operators are in the minority the effect on the majority of users in the passband is very dramatic. Values of AGC at -19 dB have been noted consistently, especially at weekends. Therefore in order to demonstrate the effects of high signal levels on the transponder AGC circuits, a QRP day has been incorporated into the OSCAR-10 schedule. This is on Mondays, UTC, and a maximum EIRP level of 100 W will be allowed on these days, although many successful contacts have been made using EIRPs of only 1 or 2 W. The QRP day was instigated from the 5th September.

## MODE L TRANSPONDER — Oscar 10

Experimental operation of the mode L (1269 to 436 MHz) transponder is scheduled for commencement on 21st September. The transponder will be activated on the traditional AMSAT experimental day, Wednesday, when OSCAR-10 is within ± 1

hour of apogee on each orbit that day. The frequencies of the Mode L transponder are:

Uplink	Downlink
1269.05	436.95 Upper Limit
1269.10	436.90
1269.20	436.80
1269.30	436.70
1269.40	436.60
1269.45	436.55 Passband Centre
1269.50	436.50
1269.60	436.40
1269.70	436.30
1269.80	436.20
1269.85	436.15 Lower Limit
	436.04 Engineering Beacon
	436.02 General Beacon

These frequencies are based on a transponder frequency of 1706.00 MHz, (estimated)

## OSCAR 9 OPERATIONS SCHEDULE

The following spacecraft operations schedule is now in use:

Saturday (1200 bulletin, telemetry, digitaliser, (2.4 GHz)

Sunday — 1200 bulletin, telemetry, digitaliser (2.4 GHz)

Monday — High speed, whole orbit radiation scan

Tuesday — Check-summed telemetry data

Wednesday — CCD image data

Thursday — Whole orbit telemetry data scan

Friday — Load bulletin, digitaliser, telemetry schedule

The current spacecraft power budget requires the radiation counters and scientific magnetometer loads to be shed in order to run the 2.4 GHz beacon

## NEW EXPERIMENTAL SPACECRAFT PROPOSAL — UoSAT-B

An unexpected launch opportunity has appeared due to the premature demise of the LANDSAT-4 spacecraft resulting in the proposed early call-up of the replacement mission (LANDSAT-D) — now currently scheduled for February 1984. A proposal has been prepared by the UoSAT Team and submitted, via AMSAT-USA, to NASA for the launch of a UoSAT-B experimental spacecraft to accompany the LANDSAT-D satellite. In view of the extremely short timescale available to prepare a spacecraft for this launch, the UoSAT-B spacecraft will be based on the UoSAT-1 system design philosophy, but will however carry an exciting new digital communications transponder and include more sophisticated experiments, navigation and altitude control systems. It must be realised that to prepare a spacecraft for launch within six months is a very major undertaking and it may prove necessary to alter the payload complement or modify the mission objectives as the project proceeds. The objectives and payload description below describes the desired goal for which we aim.

## GENERAL MISSION OBJECTIVES

Following the generally successful launch and operation of the OSCAR-10 amateur radio communications satellite, the mission

objectives of UoSAT-B are intended to be complementary to those of AD-10 and further development of the UoSAT-1 philosophy, as follows:

### a) SPACE EDUCATION

To stimulate a greater degree of interest and level of knowledge in space science and engineering amongst radio amateurs, amateur scientists and home computer enthusiasts — including students, colleges and universities — by active participation in spacecraft projects requiring only relatively simple, low cost ground equipment. The mission will exploit the foundations laid by the UoSAT-1 mission in this area whilst, in addition, providing a simple-to-use digital communications transponder to encourage the use of, and familiarity with, digital communication techniques.

### b) SPACE SCIENCE

To provide both amateur and professional scientists with a low earth orbit source of readily available real-time and stored data concerning solar and geomagnetic activity to support radiowave propagation studies. An improved CCD camera will be included to provide images of earth and, specifically, the polar auroras.

### c) COST-EFFECTIVE SPACECRAFT ENGINEERING

The mission will advance further the developments in cost-effective spacecraft engineering initiated by UoSAT-1 with a view to establishing a low-cost spacecraft system design for use in future amateur radio STS-GAS launches and other secondary payload opportunities. The mission will investigate specifically the performance of computer hardware, software and memory devices, navigation, attitude control and stabilisation techniques and the development of low-cost groundstations of particular relevance to a flexible, simple-to-use store-and-forward digital communications package for global communications between amateur radio stations to be evaluated in view of a planned PACSAT — PACSAT radio Satellite

## MISSION PLAN

The UoSAT-B spacecraft will be prepared for launch by the UoSAT Team at the University of Surrey within the period September 1983 to February 1984, as a secondary payload by a DELTA 3924 vehicle accompanying the LANDSAT-D earth resources spacecraft.

## EXPERIMENT DESCRIPTION

The UoSAT-B spacecraft will carry 16 specific experimental packages in addition to the engineering systems experiments that will be described separately.

### 1) PARTICLE-WAVE EXPERIMENT

Three Gaiger counters, similar to those flown on UoSAT-1, and a single, multi-channel electron spectrometer will be mounted on the spacecraft to serve as a near-



earth reference for magnetospheric studies. Data will be available in either real-time or, for more detailed analysis, from stored measurements over both polar auroral regions to radio amateurs and professional scientists. Specifically, the four detectors will monitor electron precipitation in the energy range 1-100 keV. Two of the Geiger counters will have threshold energies for electrons of 60 keV and be set at different angles in order to give a measure of the angular distribution of the precipitating electrons. The remaining Geiger counter will have a threshold energy for electrons of 100 keV. The electron spectrometer will yield both energy spectra and angular distribution of precipitated electrons of 1-25 keV so that a distribution function can be formed for these particles. The modulations imparted on particles, as a result of wave-particle interactions in the magnetosphere on auroral field lines, will be observed by a Particle Correlator Experiment.

## 2. EARTH IMAGING EXPERIMENT

The Imaging Experiment carried by UoSAT-1 generated a great deal of widespread interest and stimulated many varied studies concerned with low-cost data reception, demodulation, image processing and display. An improved version of the charge-coupled-device imaging experiment will be flown on UoSAT-B. Short time exposures of earth will be gathered by the imager, stored within an on-board memory

and transmitted down to very low-cost groundstations using easily received and demodulated transmission formats. The image data can be transmitted by the spacecraft either immediately, repeatedly or at a later time upon ground command. A specific application of the Earth Imaging Experiment will be to broaden the base of the near-earth magnetospheric studies by recording the luminosity of the aurora, and thereby a measure of electron precipitation, over a region extending for approx 800 km on both sides of the satellite ground track. The intensity and structure of aurora will be particularly valuable in assessing the state of magnetospheric activity and of interest to radio amateur propagation studies.

## 3) SYNTHESISED SPEECH EXPERIMENT

The 'Digitaltalker' synthesised speech telemetry experiment on UoSAT-1 has been extremely successful - not only with schools and radio amateurs, but also as a valuable operational facility. A second experiment with an expanded vocabulary more suited to spacecraft telemetry and news bulletins will be included on UoSAT-B to develop this unique experiment further.

## 4) PACKET COMMUNICATIONS EXPERIMENT

A store-and-forward digital communications experiment using packet transmission techniques will be included on UoSAT-B to demonstrate the feasibility of,

and to study the characteristics of a global PACSAT communications network based on simple, low cost radio amateur stations. The experiment will possess a 96 k-byte CMOS random access memory on board the spacecraft under computer control which will retain data and communications relayed to the spacecraft from a large number of ground stations using packet communications techniques complete with a hierarchy of addresses.

Each radio amateur station will be able to load data/messages into the experiment and collect any data/messages previously deposited there for him using simple 300 1200 or 9600 BPS AFSK FM or PSK techniques with low transmit power and relatively simple receiving facilities. The results from these experiments will be invaluable in the planning and design of a future mission aimed at providing a comprehensive packet communications spacecraft - eg PACSAT.

## SPACECRAFT SYSTEMS EXPERIMENTS

The UoSAT-B spacecraft will carry a number of systems experiments alongside those described above. These system experiments are concerned with developing an improved, cost-effective spacecraft bus and experiment support facility for future amateur low-earth orbit missions - with special emphasis on low-cost Get-Away-Special (GAS) payloads on the Shuttle.

## ORBITAL PREDICTIONS (prepared 18th September 1983)

Satellite Name	OSCAR 9	OSCAR 10	BB3	BB4	BB5	BB6	BB7	BB8
Catalogue Number	12888	14129	12997	13000	12999	13002	13001	12998
Bufile Reference	NASA#507	KA90	NASA#75	NASA#136	NASA#112	NASA#82	NASA#121	NASA#240
Epoch Year 83 Day	249 89664982	257 0000	243 17211709	249 33965447	248 19029235	240 33478101	249 81972279	247 54249113
Inclination	97 5525	26 0670	82 9604	82 9629	82 9636	82 9615	82 9616	82 9599
Right Ascension	216 4069	241 3370	234 4397	297 0571	298 6767	297 3576	295 4356	300 3349
Eccentricity	0.003538	0.004293	0.005748	0.018503	0.008917	0.048678	0.020694	0.019341
Argument of Perigee	50 4708	202 7550	236 4112	299 5724	337 8966	259 1047	256 7351	21 8756
Mean Anomaly	339 6876	136 6480	123 1462	59 9129	22 2017	100 4540	103 1170	338 2124
Mean Mot on	15.22960257	2 05855890	12 15578985	12 06660831	12 05044818	12 13554895	12 08677708	12 02830784
First Derivative	0.0003924	0	0.00000004	0.00000004	0.00000004	0.00000004	0.00000004	0.00000004
Epoch Revolution	10623	190	7573	7573	7549	7507	7583	7528
Ascending Node Reference Orbits for 18 September 1983								
Orbit Number	10792	NA	7771	7714	7705	7758	7727	7691
Time UTC	0000 15	0046 28	0046 28	0043 33	0125 10	0039 55	0101 17	0022 47
Long Deg W	125.82	NA	83.46	76.60	86.05	80.44	82.53	69.02

## COMPETITION WINNER



The lucky winner of the MFJ VHF Converter, kindly donated by GFS Electronic Imports is

**J Swann VK2BQS**

Box 93, Toongabbie 2146.

Congratulations and your prize has been forwarded to you by registered post.

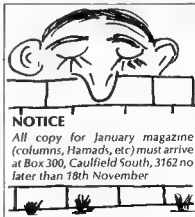
The answer to the question was "a die".

Many thanks to GFS for donating the converter and to the many members who submitted entries.

AR



AR editor, Gil VK3AU drawing the winning entry.



## NOTICE

All copy for January magazine (columns, Hamads, etc) must arrive at Box 300, Caulfield South, 3162 no later than 18th November



# ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML  
28 Lawrence Street, Castlemaine, Vic 3450

Well our main news for this month is of course our Contest No 3 on the 12th November. Rules for the contest are printed on page 50 of September AR and also on contest page in ARA issued September 1983. So please look them up and join us on the suggested frequencies and YLs remember starting from this year a trophy is to be awarded to the highest score over a five year period. So we look forward to talking to all our regulars on the contest and a lot to meeting new friends. Look for me as VK3DYF the club station.

Joan VK3NLO game me the following YLs she met at Nunawading in September. Gwen VK3DYL, Mavis VK3KS, Margaret VK3NZD, Kim VK3CYL, also there were Mavis VK3BIR and Jessie VK3VAN.

Joan is now Awards Manager for the Bendigo Premier Town Award and is busy with this.

Mavis VK3KS, Kim VK3CYL and myself were interviewed for New Idea magazine as ALARA and YL amateurs contribution for WCY. The article will appear in November so look out for the results of a very nervous trio.

On Sunday 11th September we attended the field day at Shepparton and had a most enjoyable day meeting old friends and also putting faces to some call signs we have known for years. Full marks to the Shepparton Radio Club and North-east Zone for an excellent day, the venue was first class and the hospitality was also. YLs present were Peg VK3VPG, Jenny VK3KEI, Joan VK3NLO, Judy VK3ANQ and Alice XYL of VK3PEC.

## NEW MEMBER

Welcome to Cecily VK4QW, previous calls VK4VAC and 4KCG, it was good to hear you on the ALARA net last night.

## NEW CALLSIGNS

Congratulations to Dulcie VK4BDH formerly VK4VAX and also good to meet you on the net last night for the first time.

Congratulations also to Judy VK3ANQ formerly VK3VBP, isn't it a lovely feeling to know all that study is over and it was a worth while.

Poppy VK6YF passed on to us last night on the net to look for a new YL, Alison VK6VC who will be on air soon. Alison is from California and we do hope to meet you soon and welcome you to Australia.

Joy VK2EBX recently won a poetry competition, congratulations to you Joy.

Plans are being made to hold a get-together of ALARA members and OM's at Mt Dora next September and a number of girls are hoping to get to VK3 land for the weekend. Further details as they are available.

## LIST OF MEMBERS as at 9.9.1983

		JOINING DATE	PREVIOUS CALLSIGNS
VK1NEJ	Charlene	21.2.82	
VK1NG	Narelle	13.5.83	(VK3NMV VK3DMS)
VK2AXH	Margaret	27.9.80	
VK2D.X	Joyce	22.7.80	(VK2VPD VK2KES)
VK2DUO	Norma	20.8.75	
VK2DLT	Elwyn	22.7.80	(VK3AYL/2)
VK2DGG	Margaret	20.3.82	(VK2NYG)
VK2DVL	Beryl	11.8.79	(VK2VDS)
VK2EBX	Joy	25.1.80	(VK2JVJ VK2KJV)
VK2HD	Heather	22.10.78	
VK2HMI	Joyce	5.11.78	
VK2HMR	Verie	4.11.76	
VK2KCN	Marie	8.8.81	
VK2NGI	Geraldine	14.7.79	
VK2NVQ	Dorothy	17.3.83	
VK2NYL	Betty	9.3.81	
VK2PAW	Kathleen	1.10.80	
VK2PF	Susan	15.1.82	
VK2PSC	Suzanne	20.10.82	(VK3VHG/2)
VK2SU	Freda	26.7.80	
VK2YQK	Wendy	20.3.82	(VK2VKD)
Bobbie O'Hare		6.10.77	
VK3AGO	Lorrie	8.5.79	
VK3AYL	Rae	20.4.78	(VK3VUK)
VK3BBJ	Irma	9.6.79	(VK3VCF VK3ZOU)
VK3BF	Mavis	23.8.75	
VK3BJB	Joan	2.8.76	
VK3BRE	Mona	1.9.76	(VK2AXS)
VK3BTV	Janet	1.9.77	(VK3NMR)
VK3DML	Margaret	8.5.77	(VK3NHD VK3YYL)
VK3DMS	Marilyn	24.10.77	(VK3VUA VK3XAY)
VK3DYL	Gwen	20.4.81	(VK3VGT VK3PGT VK3KYL)
VK3DVL	Vaas	25.3.81	(VK3VUD)
VK3GK	Marjorie	3.10.76	
VK3KS	Mavis	22.8.75	Non Life Member
VK3M	Joan	19.10.81	
VK3NMH	Nita	17.11.78	
VK3NTD	Bron	6.11.82	
VK3NZD	Margaret	25.3.81	
VK3PBL	Bonnie	11.5.83	
VK3PEH	Dale	26.11.82	
VK3UE	Carice	29.10.76	(VK3VB)
VK3VAN	Jessie	12.2.81	
VK3VBE	Joyce	17.3.79	
VK3YL	Austine	5.4.76	
Kate Duncan		11.8.75	
Rita YF/VK3JIB		26.5.83	
Randi YF/VK3BL		16.11.76	
Brownwyn YF/VK3BFP		2.10.80	
Muriel YF/VK3VZY		9.6.79	

VK4ABM	Chris	14.7.79	
VK4ACJ	Sandra	22.7.80	(VK4VCJ)
VK4AOE	Margaret	10.10.80	(VK4VCE VK4KAU)
VK4ATK	Connie	1.9.82	
VK4AWE	Sharon	17.9.79	(VK4NWE)
VK4BDH	Dulcie	6.1.81	(VK4VAX)
VK4BSO	Wendy	2.3.82	(VK4ABA)
VK4KJ	Valene	7.4.83	(VK4ZVR)
VK4KLJ	Lorraine	20.11.82	(VK4NAD)
VK4NAM	Dorothy	21.5.76	
VK4NDG	Phyl	12.1.81	
VK4NEZ	Heather	18.5.83	
VK4NME	Iris	5.9.82	
VK4NAJ	Vai	21.8.79	
VK4NKK	Anne	12.6.81	
VK4PZ	Marv	9.3.81	
VK4VDJ	Roslyn	1.10.80	
VK4VIT	Christina	28.2.82	
VK4VKT	Valerie	7.10.81	
VK4QW	Cecily	9.9.83	(VK4VAC/KCG)
VK5ANW	Jennifer	21.4.78	(VK5ZBI)
VK5AVJ	Joan	8.8.83	(VK5KVV VK5NVJ)
VK5BJH	Joyanne	30.3.81	(VK5PJH VK5KJH)
VK5BYL	Judy	20.3.82	(VK5NWW)
VK5LM	Lorraine	4.4.76	
VK5PWA	Carol	14.7.83	
VK5QO	Marlene	12.2.81	(VK5NVQ)
VK5YJ	Joy	14.7.79	(VK5NRQ)
VK5YL	Denise	20.4.76	(VK5YLL VK5YLV/2)
Maxine YF/VK5ZCH		7.4.76	
VK6KYL	Diane	2.3.79	(VK6NGO/ZYL)
VK6MH	Bobbie	14.12.76	
VK6MKU	Peggy	15.8.83	
VK6NSU	Sue	2.10.80	
VK6MYL	Bev	2.3.80	
VK6QMI	Margaret	21.6.80	(VK6NFD)
VK6YF	Poppy	3.7.78	(VK6NEB VK6ZEB)
VK6YL	Gillian	15.7.76	(VK6ZGI)
Beryl YF/VK6HA		30.1.81	
Olive YF/VK6WT		21.10.77	
VK7CC	Christine	10.6.83	(G8IB G4CXI)
VK7HD	Helene	29.12.77	(VK7NHD)
VK7JM	Jan	23.1.81	(VK7NJV)
VK7ZSU	Sue	25.8.79	(VK7NSU)

ALARA Club Stations: VK3DYF  
VK3DYF

## OVERSEAS MEMBERS

BF1FL	Christel	11.12.82
DF2SL	Anny	2.10.76



## SPONSORED BY

VK3DVT	
VK3DZ	

DF3_X	Heidi	12 3.83	VK2HD	VE7BP	Elizabeth	1 10.79	VK6Y
DJ0FK	Paula	1 11.81	VK4ADF	VY10V	Diana	30 1.82	VK7HD
DJ1TE	Christa	1 10.75	VK2HD	VK9ML	Kirsti	1 6.80	VK3YL
DJ5IT	Margot	1 11.81	VK5YL				
G3HQ	Sheila	20 5.81	VK4ATK	WA0WDF	Kay	24 4.61	VK2NDI
G4EYL	Ann	26 3.81	VK3YL	WA1UUV	Karla	10 12.79	VK2HD
G4FZ	Diana	26 9.78	VK4ABM	WA3HUP	Mary-Ann	6 10.81	VK6YF
G4KFP	Joan	1 1.81	VK2NH	WA4SRD	Edith	17 10.79	VK6YL
G4KVR	Gilla	1 11.81	VK4NDG	WB0SXM	Pat	14 7.79	VK2HD
GM4K4Q	Helen	12 8.81	P29NSF	WB2YBA	Christine	1 6.78	VK3KS
GM4L4S	Shirley	20 12.80	VK5ANW	WB3COM	Ruthanna	30 3.81	VK6Y
				WH2ADG	Denise	22 11.82	VK5Y
				W2GLB/7	Phyllis	23 7.76	VK3B R
J016BH	Kazuko	20 10.82	P29NSF	W3CDQ	Liz	1 11.78	VK3KS
J3JWWS	Sayoko	1 9.82	VK4VKT	W3RXJ	Irene	1 11.78	VK3KS
				W4KJE	Toni	1 10.80	self paid
KABV	Joanne	16 10.82	VK3NLO	ZL1AJL	Carol	18 8.76	self paid
KA/CRO	Martha	2 3.82	VK4BSO		(previous callsigns ZL1TNR, ZL1A, L/C ZL1YL/K,		
KBRT	Lee	2 10.80	VK3DML	ZL1ALF	Aota	12 12.79	VK2HD
K7FF	Jan	1 6.78	VK3BR	ZL1ALK	Celia	1 11.81	VK2AHD
KKSL	Carol	11 5.83	VK3VAN	ZL1BDZ	Clarrie	18 3.77	VK2HD
K07Y	Shirley	1 10.80	VK2HD	ZL1BIZ	Elva	17 4.82	self paid
K9RXK	Ann	22 8.83	(VK3ANL)		(previous callsign VK4ANA)		
KC7TE	Deurel	21 12.77	VK3ANW	ZL1BOR	Leslie	11 5.80	VK2HD
K1JV	Jean	23 3.81	VK3KS	ZL1OC	Vicki	11 9.77	VK3B R
K9INK	Jarrie	9 6.79	P29NSF	ZL2ADK	Cathy	30 10.82	VK2H2W
N5CFP	Doris	10 10.80	VK3DMS	ZL2AZY	Sabina	11 1.81	VK6YF
N6GGR	Maxine	26 12.82	VK7HD	ZL1BAO	Jos	1 11.81	VK3JE
N7DGP	Joan	11 4.83	VK2HD	ZL2BOD	Jeanne	26 12.82	VK2DGG
			VK2HD	ZL2PD	Lynn	25 12.82	VK2NVL
PAQHL	Hil	12 6.81		ZL2DY	Pearl	22 4.76	VK3KS
PA3ADR	Agnes	12 6.81		Z5SDC	Diane	1 6.80	VK2NQ
				Z56GH	Diane	1 6.78	V4500
P29ASF	Seg	2 10.80	self paid	5Z4CM	Charlotte	20 2.82	VK6KYL
P29AUN	Margaret	23 3.81	VK3DVT				
P29AYL	Rae	2 8.78	self paid	VK2BRC	Ross	2 5.83	
				VK3NTR	Jack	6 11.82	
T30CH	Vicky	9 3.83	VK4VKT				
VE6AUP	Malie	1 10.80	VK3DML				
VE7CBK	Booby	26 10.78	VK3KS				
VE7CX	Rae	26 5.78	VK3BR				
VE7DKC	Margaret	1 6.78	VK2NDI				

Until next month 73 33 83 Margaret VK3DML  
AR

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# CONTESTS



Reg Dwyer, VK1BR  
FEDERAL CONTEST MANAGER  
PO Box 236, Jamison, ACT 2614

## NOVEMBER

- 5-8 YLRL Anniversary Phone Party
- 5-8 ARRL CW Sweepstakes
- 6 Czechoslovakian Contest
- 12-13 DARC WAE RTTY Contest
- 12 ALARA Contest \*\*\*
- 18-20 ARRL Phone Sweepstakes
- 18-20 VK CW QRPp Versus the World CW Test \*\*\*
- 26-27 CQ WW DX CW Test

## DECEMBER

- 3-7 ARRL 160 metre Contest
- 3 Ross Hull Memorial VHF Contest start
- 10-11 ARRL 10 Metre Phone Test

All tests marked with \*\*\* are not yet confirmed

## RULES FOR VK CW QRPp VERSUS THE WORLD TEST

### Note

This is a reprint of the contest rules for 1982 as I have not received any new rules for the contest this year. I therefore assume that the contest for 1983 will largely be the same as the 1982 contest and now reprint these contest rules for your general assistance

Sponsored by the VK CW QRPp CLUB (Member of the WORLD QRP FEDERATION) this contest is directed to a CW enthusiasts WORLD-WIDE who elect to take a extra challenge! Contestants may work DX or OWN COUNTRY for scoring!

QRO stations are invited to participate but must submit contest logs with QRO stations only to qualify for the QRO section of the contest

QRP stations must sign "QRP" for identification

DATES — Saturday 19 November and Sunday 20 November 1983

DURATION — Total of 48 hours (0000UTC 19 November to 2400UTC 20 November)

MODE — CW ONLY

CONTEST CALL — CQ QRP TEST

BANDS — 160m-10cm (WARC BANDS NOT ALLOWED)

SECTIONS — Station categories QRP Single Operator Multiband or Singleband QRP Multi Operator Multiband or Singleband QRO Single Operator Multiband or Singleband

PERIOD CATEGORIES Full Period 48 hours Half Period Any 24 consecutive hours

EXCHANGE All Stations FIVE DIGITS RST report plus IARU ZONE NUMBER

SCORING QRP Stations indicated output power into antenna NOT EXCEEDING FIVE WATTS each contact shall score points based on the following table

0-1 watt	six points
Over 1 watt-2 watts	five points
Over 2 watts 3 watts	four points
Over 3 watts 4 watts	three points
Over 4 watts-5 watts	two points

QRO stations using more than 5 watts output to antenna ONE POINT PER CONTACT (QRO/QRP only allowed)

MULTIPLIERS — Every contact in a different IARU Zone counts as a multiplier on each band

BONUS SCORE — Field Stations using battery/solar/wind/hand generated power (motor generators excluded) multiply the Grand Total Score by 15

CONDITIONS — Stations may be contacted ONCE ONLY on each band. Separate log sheets required for EACH BAND. Each logged QSO to show Date/Time/UTC, Station worked, Exchange (Sent/Received) Multiplier, Power output, Points claimed

GRAND TOTAL SCORE = Total points from all bands x Total multipliers from all bands (x Bonus Score)

All entries MUST have a FRONT SUMMARY SHEET showing: Calculation of Grand Total Score, Name and Address, Callsign, Signature and Declaration "I certify that all entries in my contest log sheets are true and honest"

Entrants are requested to include a brief description of station equipment and any comments/suggestions. Field stations are requested to include a brief description of operations/location/conditions etc

CERTIFICATES — To the QRP Single Operator and Multi-Operator in each Country with the highest Grand Total Score in each section. To the QRO operator in each country with the highest Grand Total Score in each section. To the highest scoring VK CW QRPp CLUB MEMBER IN EACH SECTION

CONTEST ENTRIES TO BE ADDRESSED TO CONTEST MANAGER, VK CW QRPp CLUB PO BOX 109, MT DRUITT, NSW 2770 AUSTRALIA

All entries must be in the hands of the Contest Manager not later than end-January 1984. Results will be available by end-February 1984 and posted to non-member contestants for 1 IRC (DX stations) or a 30-cent postage stamp (VK stations).

## RULES FOR ROSS HULL MEMORIAL CONTEST

### Note

The recent approval of the LIMITED use of the 50 to 50.15 MHz band can and does pose some awkward problems for the amateur with the proviso for operation in this segment without interference with Channel O

This point is clearly stated in a letter from Eric VK5LP to me where he makes the following points.

The use of the band for the next twelve months at least is on a conditional basis that amateurs cause no interference to Channel O. If contacts there are counted in the Contest there is every chance someone somewhere will transmit during Channel O hours and cause interference,

and thereby making it so much more difficult for us to widen the use of the band in due course. Es contacts are quite satisfactory on 52 MHz and we need to keep using that portion in the future in parallel with 50 MHz

I see the major advantage of having 50 MHz is that it gives us a section of the band compatible with much of the outside world and gives us a means to share in long distance DX contacts. If 50 MHz is cluttered up with hoards of VK stations during Es openings then there will be little opportunity for DX to be heard in many areas, particularly away from the eastern seaboard areas. The overseas calling frequency is 50.110 MHz and we want to keep it free from much of the QRM associated with Es contacts during a Contest

Perhaps of less concern but one which is mentioned is that VK6 can use 50 MHz at any time to the disadvantage of other States. They can also cause Channel O QRM at times of high Es activity, and it will be more desirable to have them up with the rest of VK than on 50 MHz and thus overcome too much fragmentation of the use of the six metre band

With these very valid points in mind all six metre contest activity will be restricted to the 52-53MHz section of the band

OBJECTS — Australian amateurs will endeavour to contact as many other amateurs as possible. Entrants must operate within the terms of their licences

PERIOD — 0001 LTC 3 December 1983 to 2400 UTC 8 January 1984

EXCHANGE — RST(1) plus a three figure serial number starting at 001 and increasing by one for each contact when 999 is reached a start is made again from 001

BANDS — All amateur bands above 30 MHz, however cross band contacts are not permitted. Operation via active repeaters and translators is not allowed

OPERATOR — Single operator only. One transmission only at one time

CONTACTS — Two contacts per UTC day per band with each station providing 10 hours have elapsed since the previous contact

DURATION — (a) 7 UTC days — not necessarily consecutive (b) 2 UTC days consecutive

SECTIONS — (1) Phone (AM, FM, SSB, ATV and SSTV) (2) CW (CW and RTTY) (3) Receiving (any mode)

LOG SHEET — It is desirable that complete logs for the whole contest be submitted for cross checking purposes. Photo copies are very acceptable. The following details must be shown: Time UTC, Band, Emission, S/N, worked, Tx exchange, Rx exchange, Points, Bonus. Each page must be totalled at the bottom

FRONT SHEET — A front sheet must be attached showing the following information in this order: Section, callsign, list of 7 best UTC days with daily score and daily multiple,

daily total plus 7, day total, list of best 2 UTC days with daily score and day multiplier, daily total plus 2 day total, name and postal address

#### SCORING TABLE — AUSTRALIA

Distance	52	144	432	576	1296	2304	up
Up to 100 km	1	2	5	20	30	50	
100-200 km	2	5	10	30	75	100	
200-400 km	10	20	40	50	100	200	
400-800 km	20	35	60	75	150	300	
800-2500 km	10	50	80	100	200	500	
2500+ km	40	70	100	200	500	700	

**BONUS** — (a) For each new call area in Australia, including own call area, 20 points once only per band per UTC day. (b) For each prefix worked outside Australia, 40 points once only per band per day.

**SPECIAL VK6 BONUS** — Note: No bonus for VK6 stations

**MULTIPLIER** — All stations shall multiply the UTC day score, including the Bonus (a) and (b), by the number of bands used for scoring during that day.

**SCORING TABLE** — Overseas Stations. 52 MHz — fifty points, 144 MHz — 100 points, 432 MHz — 200 points. For contacts with Australian stations only.

**AWARDS** — A perpetual trophy is awarded annually for competition between members of the Wireless Institute of Australia. The winner's name is inscribed on the trophy and he receives a suitable certificate. The entrant with the highest score in either the 7 day or 2 day division will be the winner and his division will hold the trophy for one year. Certificates will be awarded to the highest score in both the 7 day and the 2 day divisions. A winner of a 7 day certificate cannot be awarded a 2 day one as well. Overseas entrants will be awarded certificates on the same basis, one for each call area.

**SUBMISSION OF LOGS** — Entries are to be sent to the FCM, Box 236, Jamison, ACT, and received no later than 20th February, 1984 and endorsed "Ross Hull Memorial Contest".

**RECEIVING SECTION** — Logs must show the same information as a transmitting log except for the second number exchanged. If both stations are heard both can be claimed but on separate lines of the log. Scoring will be as for a transmitting log. Any scoring contacts can be logged, there is no limit to the number of times that one station can be logged. The decision of the FCM is final and no correspondence will be entered into.

#### SPECIAL NOTES

After a number of reports from the entrants of the 1982/83 contest and the exerted effort put in by the more interested of these amateurs to expand the transmitting capabilities of their stations together with the concern shown by the majority of the VHF/UHF enthusiasts to this non-event contest, the following alterations have been made to the rules of the contest to even the battle and to reward the entrants for their efforts in a way more fitting than the method now used.

#### POINTS MADE

If a VK3 makes the initial contact with a VK6 then the VK6 gains twice the points that the VK3 gains.

The contest promotes additional effort to use the more unused frequencies, however the short hop contact at SHF although a

challenge on QRP power earns the VK6 twice the points that all other states earn for the same effort.

Very few 6 metre openings were found during the last contest and contacts from Adelaide and VK6's in Albany is a regular event, again the VK6's scoring twice.

Some additional incentive for double hop sporadic E's over 2500 kms.

State normalising factor for all states to compete on an even footing.

Minimum of ten (10) hours should take precedence over the change of UTC day.

Awards for the top scorer in each state.

With these points in mind, and many of them made by the VK6's themselves, these changes are made and your comments on their effectiveness is sought.

1. To even the scoring, the double points for VK6 stations will be deleted. Although this seems to be a rather harsh overkill of the situation, the results from the past two years show that the wins by the current trophy holder are in the region of twice the scores of the other average contestants. This may work against the VK6's as much as the lack of amateurs in the near regions when compared to the eastern states however the opportunity for the increased range of bands still applies to all to amplify their score.

2. To allow for the user of the 6 metre 52-54 MHz section of the band and to cover the additional difficulty of 2nd hop sporadic E's, the points score will be increased to include a long distance inter Australia points score. (See last line of scoring table.)

3. CONTACTS. The 10 hour rule will take precedence over the change of the UTC day. Example: contact # 23 time 2330 15-DEC... VK1AXX, contact # 24 time 0030 16-DEC... VK1AXX NOT VALID. TEN HOURS MUST ELAPSE BETWEEN CONTACTS.

4. AWARDS. The awards of certificate to the highest scorer in the seven and two day sections in each division is the maximum that can be given at this stage. There are insufficient entrants to give awards to 1st, 2nd and 3rd and there is only one perpetual trophy to commemorate Ross Hull and the work he has done in this region of amateur radio.

These changes are made in an attempt to increase the interest in the VHF/UHF and SHF region of amateur radio and although this is not the complete answer it will greatly improve the anomalies that currently exist in the contest. The lack of amateurs in the surrounding regions of major populations in WA is seen to be the major drawback and handicap for the VK6's. However this shortcoming has successfully been overcome in the last few years and I hope it will not prove to handicap them as a result of the change.

Best of luck to all.

#### SANGSTER SHIELD CONTEST (NZART)

Below is a copy of the award from the NZART for the Sangster Shield Contest. From the reports I have heard about the test it was well worth the effort of entering and a very enjoyable time was had by all.

Congratulations to Ross and to all the other state winners on your efforts.



#### NOVICE CONTEST CERTIFICATE DESIGN

The VK Novice Contest ex Westlakes Radio Club Contest, needs new certificates to be designed.

The existing certificate looks like the sample below.

Have you any thoughts for the new certificate, if so, send the design to me for pricing and suitability.



Reg. VK1BR  
AR

#### SAFETY BELTS

All the fiddler and a considerable amount of balderdash about using safety belts when climbing the tower is a complete waste of time. Anyone with an ounce of brain will tell you that by the time you lace up the harness and strap the belt on your body you can be up the tower and back down! If anyone would like further info on the folly of safety belts you can drop me a line at this address. R F Inshack, Memorial Hospital, 7388 Traction Road, Brokenhurst, Pennsylvania. — Tamiami ARC, Venice, Florida.

from QST June 1983



# LISTENING AROUND

Joe Baker, VK2BJX

PO Box 2121 M. d. r. Vic 3500

In an earlier article, you may remember how I got a '40 with the Sydney Daily Telegraph about 1941 as a copyboy in the main Castlereagh Street Office and at the receiving station on Cammeray which was raided when the authorities went hunting for a non-existent transmitter. I thought that before I pass on to other matters, you might like to know more about my experiences at that time.

It was in the main office on the night when news came through about the bombing of Pearl Harbour and America's entry into the war. At the same time I was working mainly at the receiving station, yet doing part-time work as copyboy in Castlereagh Street. It was a Sunday night, as I remember, and Roy Philips was on duty at Cammeray. He was due to pick up San Francisco's KGE at about 9 pm according to the log book, but the transmitter had gone off the air. Roy was told to keep monitoring and put San Francisco through to Castlereagh Street as soon as he heard it. Some hours passed and when KGE did come back on air I was to announce that Pearl Harbour had been bombed. The news threw the office into confusion and instead of the normal three editions going to press, as I can remember seven editions were on the streets as the follow-up news came through.

I was so on duty in Castlereagh Street on the night Japanese submarines got into Sydney Harbour, and did much damage. The office staff had been doing an extensive air raid drill and the employees on each floor knew where to assemble and not to use the telephones. In fact, we became pretty good at those air raid precautions, so we were not expecting an attack from beneath the Harbour. On this particular night, I had been summoned to the sub-office and given some copy to take down to the printers. Normally I would have gone in the lift, but it wasn't operating this night so I took the stairway. As I reached the landing midway between floors, I thought I could hear the scream of a distant air raid siren so I paused near a window to listen. Suddenly a siren located on a floor above sprang to life and made me jump about six feet. I raced up the stairs and found the editorial floor in utter confusion.

Lights had been doused and people were racing for candles and torches — that is, when they weren't stumbling over each other in the inky blackness. Many, including myself, raced for the nearest available telephone — despite the fact that we had been so well rehearsed not to do so.

I phoned my mother at Ryde to find out what was doing in that suburb. Your father has gone out with his Air Raid Warden's gear to check that everybody has got their lights out, she said. (Dad was a Sydney tram conductor who took his Air Raid Warden's job very seriously.) Mum then asked me what I was going to do. I said that I thought that I had better not leave the newspaper office as it might not be safe to do so in view of the air raid that we thought was coming. I told her that I would sleep in the office — that is, if I

could manage to get to sleep amongst the general pandemonium.

As time passed and no bombs appeared to be exploding, it became clear that something else was happening and it was not long before we found out. Off duty reporters living in harbour-side suburbs began ringing in with stories of damage that had been done by the torpedoes fired from the submarines. At the time of the first alert, the Newcastle edition which was normally the first off the presses had been halted and Brian Penton, who was editor that night, said "This is not going to stop us printing — get those presses rolling again as soon as possible" (Brian Penton later achieved fame with a book called "Advance Australia Where?").

The Cammeray radio receiving station was of vital importance to the Telegraph at that time. Yet officially, it was not supposed to exist, and I found that out one day when I sought permission to write an article about the station for the staff paper called "Telegraph" (Telegraph was the cable address of the Telegraph). I was not permitted to write about the station — but forty years later, I thought you would all like to hear about it.

On Saturday nights, part of the work at the station was to standby to pick up XGOY, the "Voice of Chungking, China". We could usually hear them quite clearly. They would then call two other newspapers, one of which was in New York, before they called us. Having no transmitter, we could not of course answer, nor did they expect us to, being a shortwave receiving station only.

An English language announcer would then read out at dictation speed press copy from war correspondents stationed in Chungking to the New York paper and the other, and finally there would come a report for us sent by well-known journalist William Burchett. Burchett's report was usually received in good time for the next edition of the Telegraph. If we had been forced to rely on the copy being sent by cable, I think we would have been out of luck because many submarine cables had been rendered useless by enemy action.

The time the Philippines were overrun by enemy invaders is another occasion I will remember. On this night I was on duty at Cammeray, and according to the log book, we were to try for KZRM Manila at about 8.30 pm in the 31 metre band. I told Roy Philips that I was going to try for Manila with the Skyraider set. He said "You might just as well forget about that one — we haven't heard it for weeks." I said "Well I'll have a try for it, anyway just in case, because the news is hotting up around that area right now." So at the appointed time I panned the cursor up and down across the 31 metre band, not really expecting to hear anything from Manila. But right on the dot of 8.30 pm, I heard a carrier, then a voice said "This is the Philippine Islands Freedom Station KZRM Manila. Here is the news."

"Roy, I've got them!" yelled. "I've got Manila."

"Well ring Castlereagh Street and ask them if they want it," he said. So I rang the editorial room. They said "Put it through to us at once pronto!" So I threw the switches and fed the Philippine Islands Freedom Station to Castlereagh Street. Exactly seven minutes of that all-important news broadcast had gone through, when the station went dead. The city office rang me back — "What has happened to Manila," they asked, "have you been fiddling with that set?" I assured them that I had not even touched the tuning dial of the set, and that the Skyraider was OK. "Just the same," they said "hop to it and get another set on the job pronto!" So I fired up another receiver and went across where KZRM should have been but it wasn't there.

Some months later we found out what had happened. It appears that just at the time we were hearing that broadcast, the invading navy had entered Manila Harbour, and they got a direct hit on the KZRM antenna mast which was by the harbour-side.

Years later, when I was serving on Morota Island in what was then part of the Netherlands East Indies, General MacArthur's forces recaptured the Philippines, and I understand that when KZRM was recaptured under American control, he arranged that the first voice to be heard was that of the news-reader who was on the air when the antenna tower was toppled.

On another night, when I was doing back in Castlereagh Street on my old job of copyboy to earn a few extra bucks, news reached the office from a Canberra correspondent of the sinking in the Indian Ocean of an Australian warship. At this distance of time, I cannot remember which warship it was, but it was a very important one. The censor put an official "NOT TO BE PUBLISHED" on the story but a though it was then supposed to be in the Top Secret class, within about a week, news of the sinking was common knowledge all over Sydney. Doubtless the news was carried from our office by visiting telegram and Beam Wireless messengers, and as the story got around, relatives of the crew of that ship began besieging our office begging for news that we could not give. They maintained a night vigil in the office hoping that some scraps of news might come their way, and all that we could do was comfort them as best we could as they sat there crying for the lost relatives.

I was still working on the Telegraph when got my call up for the army, so there was no journalistic cadetship for me, and when I returned to my old employer after the war (employers were obliged by law to re-employ their former staff who were now ex-service), they offered me a job assisting a carpenter who was remodeling offices on the editorial floor. So I told them to keep that job and got a job elsewhere. And I'll tell you about that another time. Best of 73 Joe, VK2BJX. AM



# POUNDING BRASS

Marshall Emm, VK5FN  
GPO Box 389 Adelaide SA 5001

## COPY OFF AIR

The best way to earn is to do, the best way to increase your CW copying ability is to copy off air. The Wireless Institute of Australia sponsors slow CW broadcasts every night of the week on 3.550 MHz (NSW at 0930 UTC, SA at 1030 UTC) but I have no information about WA or Qld Divisional Morse Practice. Could someone from those divisions please advise?

I would also be very grateful for any information about other services which provide useful practice. Possibilities would be WIAW from the USA, maritime coast stations, commercial, and military. Times and frequencies and a description of material to the above address, please — don't keep it to yourself!

## INCREASING YOUR SPEED

Last month we talked about learning the Morse Code so this month we will assume that you know the code and want to increase your speed — either to pass an examination or to improve your CW operating capabilities. Of the two, the latter motive is the better, because if you are trying to improve your copying ability you are at the same time preparing yourself for the exam, but if your only goal is to pass an examination, you have set too low a target.

There is something like a 'sound barrier' in learning Morse Code. For years it was thought that a person could not possibly break the sound barrier, and similarly, many operators get to a speed of around 8-10 WPM and are convinced they cannot go any further.

This is because there are two basic ways a person can copy code. In the learning stages, the right side of the brain is listening to the signals while the left side of the brain is comparing the received signal with a list of coded meanings — once the meaning has been recognised, an order goes back to the right side of the brain so the hand can write the perceived character. There is a limit to how fast you can do this, but it varies from person to person in the range of about 8 to 15 WPM. Once you reach this barrier you cannot

improve your speed without going on to the other way of copying, which is character recognition.

With character recognition, there is no process of translating between the two hemispheres of the brain. Each sound is recognised for what it is, and the hand writes the character without any conscious thought process involved. This is very much the same procedure as with a foreign language. When you are first learning the language, you translate everything as you go, but as you improve your ability, you find you can "think" in the foreign language without having to translate it. And as with the code, some people never make the transition from translating to thinking.

Extending the analogy to foreign languages a step further, it has been known for years that if a person begins to learn early enough, by intensive exposure to a foreign language, the chances of his becoming fluent are much greater. This applies equally to learning the code, and if you learn by identifying sounds, rather than counting dits and dahs, the transition to higher speeds is much easier.

It is worth noting that some people cannot get over the hump, no matter how hard they try. Quite often these people suffer (unknown to them) from a mild form of "dyslexia". Dyslexia is a reading dysfunction characterised by mental transposition of characters, and as you might imagine it can present severe problems in learning code. It can exist in varying degrees, and a person who has never suspected he is dyslexic can suddenly find an insurmountable obstacle when trying to copy code at 10 WPM.

Anybody can learn the code, and anybody can pass the 5 WPM exam (given enough practice). But some people simply cannot pass the 10 WPM exam because it is beyond the barrier. These people would be very rare, I'm sure, but asking them to pass the exam is a bit like asking a blind man to sort resistors by means of the colour code — a bit unfair.

The key to improving your speed is to practice with characters sent at a much higher speed than the speed at which you can copy 100%. If you can afford the AEA Morse Trainer BT1, which starts you off with a character speed of 18 WPM with three second pauses between characters, you are "home and hosed". Follow the instructions and you will be a 20 WPM man in no time.

If the technology isn't available, you will have to make do with what is available on the bands, and you will note that I have asked for more information on which will be published as it comes to hand. The WIA broadcasts are excellent, but their primary objective is to get people through exams so they mostly don't go beyond about 12 WPM or so.

Listen to the real brass-pounders on 20 metres. They may be going way too fast for you, but if you concentrate on identifying the odd character, you soon find that you are starting to get more of it.

Practice with the Japanese stations on 15 metres. Call CQ a bit faster than you can copy, and ask for repeats when necessary. A lot is said off air about Japanese domination of HF, but we could do a lot worse. As a group they are the most polite and helpful operators on the air.

Enter a CW contest. You will have to listen to calls and numbers several times at the beginning, but a few hours later you will be picking them up first time.

And one last hint — throw the microphone away. Well, not literally, but when I was trying to get up to speed I made a solemn vow that I would not engage in a phone QSO until after I had made a CW contest. Even now I can sometimes go for a whole week without touching the microphone. To get your speed up you need practice, and to keep 1 up you need self-discipline. Keep at it, and you will get there — if you follow all these hints rigorously you will be a top operator in no time.

73 till next month

AM



**ZL2JAM**

**TENTH NEW ZEALAND SCOUT  
JAMBOREE AMATEUR RADIO  
STATION**

The Tenth New Zealand Scout Jamboree will be held at Fielding (about ninety miles north of Wellington) from the 2nd to the 10th of January 1984. About 10 000 Scouts and

leaders including many from Australia, the Pacific Islands and other countries will be camping together under canvas.

A wide range of radio, electronics and computer activities are planned for the Scouts. Not only will there be the traditional amateur radio station (with, it is hoped, RTTY, SSTV, and OSCAR capability), but also a short wave receiving station for SWLs, a kitset radio construction project, fox hunting (radio orienteering), and even a computer system for the Scouts to gain hands-on computer learning experience. A triple screen audio-visual presentation will show how radio and electronics activities can be incorporated into the Scout programme.

There will also be a wide range of other activities offered to the Scouts for them to



enjoy at this 'Jamboree of Discovery'. They will discover new friends, new interests and new concepts in Scout life.

Listen for ZL2JAM on the International Scout frequencies of 3.740, 3.940, 7.090, 7.290, 14.290, 21.360 and 28.990 MHz plus or minus to allow for QRM.

Jim Parnell ZL2APE



# CLUB



# CORNER



## COMMUNICATIONS EXPO 83

It was promoted as the largest public WCY event in Victoria (and possibly Australia) and lived up to all expectations.

Held at the Nunawading Civic Centre on 3 September, it was organised by a special committee of the Eastern and Mountain District Radio Club headed by Jack O'Shannassy VK3SP which put six months hard work into planning and organising the event.

The committee with WCY in mind wanted more than just a Hamfest and made it attractive to the general public — the name Communications Expo 83 helped achieve this aim. There were traditional Hamfest activities — foxhunts, trade displays, valve and spoon races, guess the frequencies of helical whips, read Morse code with increasing QRM, radio throwing contest, home-brew competition, flea market, etc.

Five competitions were grouped into a pentathlon with the highest aggregate scorer being Daryl Hergl VK3AKC.

The much heralded Tug O'War between radio amateurs and CB operators (Omega Radio Club) saw the CBers win — but the amateurs and Omega Club members enjoyed the get together resulting in a closer relationship being cemented.

The Omega Club had also spread the word about Comexpo and their efforts meant CBers hearing talk on the CB bands coming along to see what it was all about.

Some CBers wanted to study for the Novice licence and were effectively given advice on how to go about becoming a radio amateur.

Comexpo drew a large number of amateurs from throughout Victoria with the trade displays worth up to \$10,000 worth of business.

Among the other commercial displays were Telecom, Hewlett Packard computers, and Tara Systems the phone-patch firm.

The State Emergency Service had a wide-eyed audience when it cut open a car in a simulated rescue — St John Ambulance Brigade displayed its communications bus — and the CFA and Forest Commission were well represented.

Like the CBers emergency service personnel wandered around and learnt about the various aspects of amateur radio.

The general public had been attracted by newspaper, television and radio publicity.

Some people also had only arrived to visit the Nunawading Library — but got the bonus of a communications display.

They questioned those manning the various attractions — the special station VK3WCY and the RTTY exhibition run by the Victorian Radio Amateur Group were extremely popular.

The ATV show put on by Peter Cossens VK3BFG attracted considerable attention, king of the Third Party Traffic Net, Sam Voron VK2BVS was on hand to take Amateursgrams, DX Australia Shortwave Listener Group explained SWling, and the Army display communications gear.

Eastern Suburban Scouts did a marvellous job providing refreshments for the crowd of more than 4000.

It's not practical to mention all of the groups which went to make up Comexpo.

At its end, Comexpo was hailed an overwhelming success not only as a Hamfest — but also a Public Relations Exercise for our hobby.

## ANARTS

On Tuesday evening, 6th September, the Australian National Amateur Radio Teleprinter Society had the honour to be host to Mr R Butler, Secretary General to the International Telecommunications Union.

Mr Butler was in Sydney primarily to attend the IREE convention, but he also took the opportunity to meet the committee and guests of ANARTS at a dinner at the Sebel Town House, where he donated and presented the trophies for the ANARTS World Communications Year 1983 RTTY Contest. Mr Butler congratulated ANARTS on their achievements in the International World of Radio Teletype Transmissions, he also pointed out that ANARTS were now one of the leading societies in the world in the field of radio teletype. In his address at the dinner Mr Butler said "Today I am very proud to be invited to honour the winners of the International Radioteletype Contest organised by the Australian National Amateur Radio Teleprinter Society. Your operation and experience on the narrow and well used frequency bands allocated by ITU Administrative Radio Conferences have made it possible that the amateur service has managed to achieve an overall record of innovation, growth and development. You do not measure your services by volume of

traffic, gross revenue, or audience — but simply how well you have served human ty. The amateur radio fraternity is unlike any other social group in the world. It constitutes an ideal example of how people and nations can live together. It makes no distinctions as to race, creed, or colour, political ideology, national origin, male or female, child or adult, healthy or handicapped, professional or unskilled well-known politician or citizen, king or peasant, missionaries or agnostics."

Other guests at the dinner were Merck Joachim OK1WI consulting engineer to the Ministry of Communications in Czechoslovakia, and Pierce Healy VK2APQ.

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## TOWNSVILLE AMATEUR RADIO CLUB

Aspiring amateur radio operators should find studying for their licences a little easier with the assistance of amateurs from Townsville and Charters Towers who recently took part in an education seminar. The Townsville Amateur Radio Club, in conjunction with the WIA(Q), arranged the two-day course for intending instructors.



Oakey High School science teacher Ron Smith VK4AGS was flown to Townsville especially for the course, and conveyed much valuable information on how best to pass on skills and knowledge to beginners. The photo shows Ron, left, instructing Bob Mann VK4WJ in the finer points of preparing overhead transparencies.

Peter Ranton, VK4PV  
PUBLICITY OFFICER

(Photo by courtesy of Townsville Daily Bulletin)

## A DAY OF DISAPPOINTMENT

Whilst clubs with large numbers of members can, and do, organise large scale commemorative events for special occasions, one must remember the smaller clubs and appreciate their contribution on such occasions. One such "small club" is the Western Suburbs Radio Club in Melbourne.

The Club was inaugurated on the 21st November, 1969, with the formation of a four man committee. On the 20th February, 1970,



Pierce VK2APQ

Photo by G Campbell VK2ZOC





Ron ('Big Mac') McDonald, a keen new member, shows obvious delight in UHF activities.

the first general meeting took place. This meeting attracted a healthy thirty two prospective members. Although named the Western Suburbs Radio Club, amateurs from all parts of Melbourne's suburbs became members. Today the same can be said, and although club numbers have ascended and descended over the years, the Western Suburbs Radio Club still boasts around the same number of members as that of the first meeting years ago.

With the growing awareness of World Communications Year, and the knowledge that radio clubs throughout Australia were planning commemorative events, the Western Suburbs Radio Club decided to hold a one day portable field day.



Mike VK3PFL operating 10 metres using his FT101E and a long wire.

The Field Day took place amidst glorious sunshine on Sunday, 4th September. Seventeen members, family and friends assembled in the small town of Whittlesea, 50 km north east of Melbourne for the drive to Mount Disappointment.

Mount Disappointment stands 855.98 metres (2810 feet for OT's) above sea level, 50 km north east of Melbourne as the crow flies, but around 70 km north east by road. The mountain's name was inspired by the

legendary explorers, Burke and Wills. Three days after leaving Melbourne with supplies, Burke and Wills camped at Mount Disappointment. It was their belief that on the north east side of the mountain lay a large inland lake, and it was their intention to find it. All efforts to find the lake failed, primarily because the lake did not exist. In frustration the mountain was named 'Disappointment'. Had radio been invented in those days Burke and Wills might have called the mountain 'Fantastic', as it is an ideal site for portable field operations, particularly on VHF and UHF.

By 10.30 AM with radio gear unpacked, antenna erected and seating arrangements finalised, (not to mention cold weather gear on) the first CQ from VK3AWS/P was made. The club call sign could be heard on HF using an FT101E and FT707 with a 90 m long wire/ATU combination and 15/10 m dipoles, on VHF using an IC22A and FT290R with a five element beam and quarter wave whip, and on UHF with an IC4E portable and 1/2 wave whip. Thirty seven contacts were made during four hours of operation, not a bad effort. The Club also gained the Bendigo Premier Town award during the day, and it is hoped the Western Suburbs Radio Club reciprocate in the near future by helping Bendigo amateurs attain our Club award.



Gordon VK3YOD swings the 2 metre beam —then again it could be the 2 metre beam swinging Gordon!!

The day's operation closed at 3.30 PM just prior to a cool change in weather, with all adjourning to the PI-warmer for hot coffee and munchies. By general consensus it was agreed the day had been a success, and plans for a return visit made for the near future.

The Western Suburbs Radio Club operated from Mount Disappointment for many years, until pipped at the post one year, and members were pleased to return to their old stamping ground.



Neil VK3VZY ragged up and ragchewing on 40 metres using the Club call sign VK3AWS.

One thing for amateurs is sure, operating from a location such as this is never Disappointing!!!

Photographs Mark VK3P  
Mark Stephenson, VK3PI  
PUBLICITY OFFICER



QSP

## JOINING OPTICAL FIBRES

A team of British Telecom engineers has developed a device, said to be the equivalent of micro-surgery, capable of joining hair-thin optical fibres with high accuracy.

Optical fibres, known as lightlines, carry telecommunications by laser light replacing many old cable communications systems.

These fibres must be precisely aligned before they can be joined, which is very difficult, particularly when working underground. The new machine is completely portable and has an accuracy of one micron (one thousandth of a millimetre).

Fibre optic cables are a fraction of the size of normal coaxial cables and have a higher capacity and greater reliability with less maintenance. They also eliminate interference and cross talk on telephone lines and need less repeaters to boost signals.

Adapted from Information Technology from Britain August 1983

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## CLOSED CIRCUIT TV EXAMINES DAM WALL

The Hunter District Water Board NSW, recently constructed a 200 metre-long dam near Newcastle and it was decided the wall of the dam should be inspected internally each year. The authority has devised a method using closed circuit TV to examine pipes, boreholes and other narrow channels.

The camera in a 51 mm diameter stainless steel case is lowered into 300 mm diameter inspection holes drilled vertically into the sloping part of the dam wall at intervals of 10 m along the whole of its length. These holes are 80 m deep and pass through the concrete structure into the natural rock on which the dam is built.

Adapted from Information Technology from Britain August 1983

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# AR SHOWCASE



## CODE RECEIVER

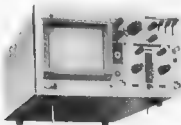
The Info-Tech M-600A is a unique code receiver/converter that will accept multiple codes from your shortwave receiver and convert these codes to a display on a video monitor or a hard copy printout on your printer.

The codes accepted by the M-600A are: Morse — 5-80 words per minute, Baudot RTTY — 45, 50, 57, 74 & 100 Baud, ASCII RTTY — 75, 110, 150, 300, 600 & 1200 Baud and TOR (SITOR) — ARQ & FEC modes.

The M-600A uses state of the art Micro-processor circuitry to let you monitor thousands of CW and RTTY signals in Marine, Commercial, Government, Military and Press services.

Simple connections to your shortwave receiver and video monitor or printer will put your system on the air in minutes for new horizons in monitoring.

Further information may be obtained from Emtronics Box K21, Haymarket, NSW 2000.



## DUAL TRACE OSCILLOSCOPE

The Model OS820 Dual Trace 20 MHz Oscilloscope is now available ex-stock.

This unit is especially built in Korea, and supplied directly to the end user priced economically at \$495 plus tax, probes included.

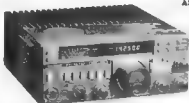
A particular feature of the instrument is the component tester which allows the checking of electronic components without the need for an external supply.

Ideal for TV work the trigger coupling includes line and frame synchronisation, circuitry.

The vertical sensitivity ranges from 5 mV/Div to 10 V/Div and the rise time is less than 17 ns.

This scope makes an ideal general purpose tool for both the hobbyist and the professional. A 45 MHz model is also available.

For further information contact Neotronics Pty Ltd, PO Box 289, Newport, NSW 2106. Phone (02) 918 8220.



## NEW ALL MODE TRANSCEIVER

The Yaesu FT-757GX all mode transceiver blends the finest features of late model HF transceivers into a volume smaller than any predecessor and actually simplifies the circuitry and construction, at the same time.

Features include three microprocessors, dual VFOs and eight memories, programmable memory scanning, all modes — SSB, QSK, CW, AM and FM, whisper quiet cooling fan, uncluttered front panel with only necessary operating controls — all presettable controls are mounted on rear panel.

All items normally sold as extras are already installed and provided as standard. These include AM, FM modes, a 600 Hz narrow CW filter, rambic keyer with dot-dash memory, 25 kHz marker generator, IF shift and width filters, noise blanker and AF speech processor.

The FT-757GX will be available from Bal Electronic Services, 38 Faithful Street, Wangaratta, 3677, in October.

## DRESS UP WITH A QSL CARD HOLDER

Now in stock are plastic QSL Card Holders which are designed to neaten up any shack.

Two card holders are supplied with each pack. Each card holder contains twenty pockets. Forty cards can be displayed neatly on the shack wall for \$3 plus \$1 post.

For further details contact: GFS Electron c Imports, 17 McKeon Road, (PO Box 97) Mitcham, Victoria 3132. Phone (03) 873 3939.

### RX-2300-KIT

MICROWAVE DOWNCONVERTER

**ASSEMBLY  
MANUAL**

**TEM** MICROWAVE CORP

88018 87th Avenue North  
Decorah, MN 56274  
Telephone 612 488 0014

Price:	Manual only
	Hardware only
	Electronics only
	Complete kit

## Dress up!!

## DOWNCONVERTER KIT FOR 2.3 GIGAHERTZ NOW AVAILABLE

The 2.3 GHz downconverter kit, the Model RX-2300 is designed for easy assembling and may be tuned to any 50 MHz band between 1.69 and 2.7 GHz. Interesting services included within this range are Weather Satellites, NASA's S-Band Space Shuttle Video and Audio link as well as a NASA beacon on the moon. The IF frequency is user selectable between 54 and 220 MHz.

Because use is made of a low noise microwave transistor in the RF Amplifier stage the RX-2300 exhibits an extreme y good sensitivity.

All components are supplied with the kit including a comprehensive instruction manual, diecast metal case and BNC Connectors. Price of the kit is \$89 plus \$5 P & P.

For further information contact the distributors: GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Victoria, 3132. Phone (03) 873 3939.



# VK2 MINI BULLETIN

Jeff Pages, VK2BYJ  
VK2 MINI BULLETIN EDITOR  
PO Box 1066, Parramatta, NSW 2150

## COUNCIL REPORT

Divisional Council met at Amateur Radio House on the 16th September. Eighteen applications for membership were approved. Council decided that the NSW component of the annual subscriptions would remain at \$7, making the 1984 subscriptions \$30 for full members, \$28 for associates, \$23 for students, \$18 for family members and \$23 for pensioners. VK2 now has the lowest rates of all the Divisions.

Council discussed a member's suggestion that broadcasts be discontinued on 10, 6 and 2 metres SSB to allow the beacons to operate continuously. It was resolved that, as there is a considerable audience to the broadcasts on these frequencies, broadcasts will continue with the beacons being disabled during broadcast times as is the current practice. Due to technical restrictions the broadcast transceivers cannot operate simultaneously with the beacons.

Dural Officer Jeff Pages VK2BYJ reported that approaches to the Department of Communications regarding interference to the Dural 2 metre repeater from a nearby paging transmitter had proved fruitless, as the noise from the transmitter was well within specifications. The paging transmitter is currently undergoing testing and is expected to go into full time service in the near future. The effect of the interference is to cause a significant reduction in the repeater's sensitivity, and as it is caused by wideband noise radiated from the paging transmitter there is nothing that can be done at the repeater site to alleviate the problem. Council decided to refer the matter to the Federal EMC Co-ordinator.

An application from the Central Coast Amateur Radio Club to change the frequency

of their 2 metre repeater VK2RAG from channel 6750 to 6725 was approved for submission to the Department of Communications. A repeater application from the Liverpool and Districts Amateur Radio Club and a beacon application from the Hunter Branch Radio Group were also approved for submission to the Department.

Council appointed Vince Roberts VK2PRB as the VK2 Slow Morse Co-ordinator, replacing Ross Wilson VK2BRC who has been transferred to Canberra. Council records its appreciation for Ross's efforts and wishes Vince well in his new position.

The Divisional Librarian, Aub Topp VK2AXT, wishes to thank those members who responded to the request for books and magazines in a recent broadcast. Those who responded were VK2QL, VK2HV, VK2ZAB, VK2PJ, VK2ZSC and two anonymous members and Council records its thanks for their contributions. The library is always looking for old books, bulletins and especially solid state devices, application notes and manuals.

## EDUCATION SERVICE 1982 ACCOUNTS

These accounts have now been audited by the Division's auditors and they state, in part, that "the accounts... are properly drawn up in accordance with the provisions of the Institute's regulations" and that "the accounting and other records... have been properly kept in accordance with the rules of the Institute". As at the 31st December, 1982, the Education Service Subcommittee had a balance of \$35,453 and realised a surplus for 1982 of \$1,577. Council feels that the expense of providing each member with a five page booklet of these accounts would be prohibitive, and advise that any member wishing

a copy can either call in at the Divisional Office, write asking for them or ask on broadcast callbacks for a copy to be posted to them. The Education Service committee members had a very successful year in 1982 supplying novice kits to prospective amateurs while writing two new publications — "Intro Electronics" and "100 Basic Electronic Projects".

## CONFERENCE OF CLUBS

The 9th Conference of Clubs is being held at the Central Coast Leagues Club, Dane Drive, Gosford, on Sunday 6th November, commencing at 10 AM. Any WIA member is welcome to attend as a spectator. The Conference provides Council with valuable feedback from the large proportion of the members represented by the club delegates, and we thank the Central Coast Amateur Radio Club for providing the venue for this Conference.

## SHOALHAVEN REPEATER

The Shoalhaven Amateur Radio Club has advised that it is rebuilding its repeater VK2RSD into a 496 mm rack panel to be compatible with the new building erected by Shoalhaven City Council. The club has been given sufficient rack space for both its 2 metre and 70 centimetre repeaters. To help cover the costs in providing this service the club is looking for "repeater members" at \$5 per year, particularly from the many mobiles who use the repeater during the holiday periods.

Information from members and clubs for inclusion in the January Mini Bulletin should be forwarded to the Divisional Office at PO Box 1066, Parramatta, NSW 2150, to be received no later than 12th November.

73 from Jeff Pages VK2BYJ

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## SUBS RATES AND JOINING FEES 1984

	ACT	NSW	VIC	QLD	SA	WA	TAS
<b>Bona Fide Student Pensioner</b>	\$21.5 \$23	\$23 \$23	\$20 \$23	\$11 \$23	\$18 \$24	\$19 \$24	\$12.75 \$23
<b>Associate Member (No Callsign)</b>							
<b>Metropolitan Country</b>	\$32 \$32	\$28 \$28	\$38 \$38	\$38 \$38	\$32 \$32	\$29 \$29	\$31.5 \$31.5
<b>Full Member</b>							
<b>Metropolitan Country</b>	\$32 \$32	\$38 \$38	\$35 \$35	\$30 \$30	\$34 \$34	\$30 \$30	\$31.5 \$31.5
<b>Plus Joining Fee</b>	—	\$4	—	\$3	—	—	\$1

Family Member (eg wife) without AR — deduct \$12.05 from appropriate full or ass rate, except— ACT — \$20, VIC — \$15, QLD — \$11, NSW — \$18

Subs subject to confirmation.

## STRAYS



In the year 1935 or thereabouts the ARRL magazine "QST" ran an international contest which offered a prize to the amateur with the most hammed name. There were plenty of applications with all sorts of surnames, eg Vail, Amp, Hertz, Morse, Zener, Watt, Trap, Shield, Serber, Corona, Buncher, Bridge, R. and R. P. P. P., Ohm, Hurtle, Mills, Joule and so on—but the contest was won by an Australian named Robert Francis Burns. RF Burns — it does you know!

Unfortunately, the said RF Burns' callsign has disappeared from the records into limbo land. Maybe some reader can supply it, his QTH and period of operation.

A. Shawsmith, VK4SS

AR



# VK3 WIA NOTES

Jim Linton, VK3PC  
DIVISIONAL PRESIDENT

The Victorian Divisional Council at a special meeting to discuss the Institute's budget for 1984 decided on a modest increase in most of the annual membership subscription rates.

Councillors examined all aspects of the WIA's financial affairs with the Divisional Treasurer Des Clarke, VK3DES giving a detailed run down on expenditure and revenue.

Australia had a wage freeze (now ended) and in line with the freeze the division did freeze its membership subscription rates for 1983.

This freeze included absorbing a \$2 increase in the Federal WIA component. For those who may not know about the make up of the subscriptions — they're really two subscriptions in one. The federal component pays for AR magazine and the various national and international responsibilities handled by the WIA's Federal Executive.

It was impossible for the VK3 division to continue the freeze and absorb another increase in the federal component — and the considerable cost increases faced by the division in 1984.

State Government taxes, charges and rates have risen, and postage went up last month.

For example the electricity bill for the Institutes VHF/UHF repeaters alone will be \$1 000 in 1984 — a 30%-35% increase on 1983.

Department of Communications licence fees will cost the division \$800 — repeater licence fees have been increased 25%.

The operation of repeaters is not cheap, but they're an essential service provided by your division.

Radio amateurs who are not WIA members also use the repeaters — perhaps members could encourage those non-members to join the Institute and help pay their share of repeater costs.

Apart from operating costs which include site rentals and insurance, an allocation is made in the budget for some upgrading work on repeaters.

Another major service to members are the inward and outward QSL bureaux. Your division, unlike others, doesn't make a charge to members for each card handled.

Non-members are however charged per card they want sent overseas.

Increased postal charges make the operation of the QSL service more expensive — but at the same time it makes the QSL bureaux a valuable service for radio amateurs and SWLs.

The running of an attended office results in expenditures including wages, postage, power, telephone, office supplies, rates and insurance.

The Wireless Institute Centre is the contact point for the WIA in Victoria — both for the member, the non-member wishing to join, people wanting to enrol in the theory and Morse classes, and for those wanting to make inquiries about our hobby including government agencies and other organisations.

Volunteers man the office on weekdays to handle inquiries, book and dispose of equipment sales being a major part of office activities.

The Administrative Secretary Maxine Conheady attends the office two days a week to handle correspondence and general office duties.

A substantial local on has been made for upgrading the Divisional Sunday Broadcast through VK3BW1 — A major refurbishing of the broadcast facility has begun.

To maintain services to members in a climate of rising costs, and for necessary repeater and broadcast upgrading, the scale of subscription rates had to be changed for 1984.

A full member is now \$35 (an increase of \$3), associates \$30 (up \$2), country full \$35 and country associates \$30.

The student grade is \$20 (unchanged from 1983), pensioner grade \$23 (covers federal component only — nothing retained by division), family member remains at \$15 per additional member.

Despite the subscription increases — I'm sure you'll agree they're still excellent value for money.

The full member grade for example is less than 68 cents per week. Subscription renewal notices are being sent out this month.

73  
Jim Linton  
AR

## STUDYING FOR THE NOVICE LICENCE?



### THEORY BOOK:

- contains all nec. theory
- clear diagrams
- simple-to-follow text
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Adjust your antenna for maximum performance. Measure resonant frequency, radiation resistance and reactance. Better than an SWR meter. Operates over 100 MHz. Most useful test unit in your shack.

**\$60**  
POST PAID

### ANTENNA BALUNS

3 to 30 MHz  
Baluns for: 50 Ohm  
Centre support  
Lead for Dipoles, Beams, Quads  
50229 connector



**\$26**

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240 Volt @ 10 Amp



**\$16**

1000's of Transistors — Ferrites — Hobby Kits — Tag Strips — Switches etc. Send stamped addressed envelope for full list

## MORSE TAPES:

- 5 WPM novice speed
- 10 WPM exams
- 8/10/15 WPM practice
- 15 WPM practice
- \$5.00 ea inc post

**K. BRUCE SMITH**  
110 Rosemead Road  
Hornsby N.S.W. 2077

**G. SCOTT**  
11 Balmoral Crescent,  
Surry Hills, Melbourne,  
Vict. 3127.





# VK4 WIA NOTES

Bud Pounsett, VK4QY  
Box 638, GPD, Brisbane, Qld 4001

## NORTH QUEENSLAND RADIO CONVENTION

The Townsville Amateur Radio Club staged the North Queensland Radio Convention over the weekend of 23, 24, and 25th of September at James Cook University Townsville. Our Division President, Guy Minter was there and here is the text of Guy's speech at the convention.

On behalf of the Wireless Institute of Australia, as Divisional President, I congratulate the Townsville Amateur Radio Club on the proud achievement of once again staging the North Queensland Radio Convention.

It is ten years since I attended your first Biennial Convention. It is indeed a proud milestone in the records of amateur radio in North Queensland, and especially of the Townsville Amateur Radio Club, that one club has been able to stage such a large function, so many times, so successfully.

TARC as a club is especially fortunate to have the depth of administrative talent it has. It ensures that all the many details are handled without fuss or bother, so that all of us attending this Convention may enjoy the fruits of their labour. Now most of you attending this Convention know the excellent things that TARC has done over the years. However, a few of you may not realise what the Institute has done. The Wireless Institute of Australia was founded in 1910 and is the oldest radio society in the world. Being old does not necessarily mean it is good — look at

your radio gear sometimes — but the Institute has a depth of knowledge and experience in looking after the interests of the nearly 15 000 amateurs in Australia. The Institute consults and negotiates with overseas bodies, both Amateur and Governmental, on international matters. Within Australia, the Institute has an especially close and friendly relationship with the Department of Communications on matters concerning the regulation of the Amateur Radio Service.

Recently, a band segment 10.1 to 10.15 MHz was released, and now 50 to 50.15 MHz for use by Australian amateurs. Further segments in the 18 and 24 MHz bands have also been released for our use. In today's complex society, there is immense pressure on the Electromagnetic Spectrum. Yet, how is it that the Amateur Radio Service is not only retaining its frequency allocations, but is making significant gains?

It is because of an immense number of hours of unpaid work put in by many amateurs throughout the world ensuring that our hobby retains the right to exist. The Institute works for all amateurs in Australia, yet only about 60% of current licencees are members. Is the membership fee of \$27 too high, or is it better to let the other fellow pay his fees, and for you to just tag along for a free ride?

Do you believe in insurance for your home or car? Naturally, as a responsible citizen, you do. A well known corollary of Murphy's Law states that the day you surrender your car insurance policy, is the day your car hits a Holden Commodore or worse still, a new

Mercedes. Yet, with your hobby you have many hundreds of dollars invested in your radios, antennas and associated gear. Surely, you should pay just a few dollars a year insurance in your Institute membership fees to ensure that you can enjoy your hobby in the future! Townsville Amateur Radio Club will ensure that we will all enjoy this weekend. The Institute will continue to ensure that we will all enjoy our hobby in the years to come.

## EVELYN BAHR, VK4EQ

Evelyn Bahr was licensed back in the mid 1950s and was the first lady member of the Townsville Amateur Radio Club. She was Club Treasurer in 1974 and became Editor of the club magazine "Backscatter" in 1975, a position that she holds today. She has been Net Co-Ordinator of the weekly 80 metre net from VK4WIT and has been active in WICEN field days, JOTA and other club amateur radio and social activities for many years.

In presenting an award of great distinction to Evelyn at the North Queensland Convention, President Guy Minter, VK4ZXZ had this to say:

"Evelyn, you are a credit to your club and to the WIA with whom in North Queensland, you have been our ambassador. Above all you are a credit to our hobby by your excellent examples, both on and off the air. Evelyn, it is with pleasure that I present you with the Queensland Division of the Wireless Institute of Australia Merit Award Badge for 1983, you have truly earned it."

EB



# FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW  
59 Albert Street, Carence Gardens, SA 5039

## PUBLIC RELATIONS

Last month I reported that we had been offered a stand at the Electronics Exhibition at Morphettville Racecourse on the 4th-6th November. Since then we have also been asked to be part of a display in West Lakes Mall as part of "Science Week" which is run in co-operation with the Education Department and this year will be from the 24th-28th October during normal shopping hours. Unfortunately, by the time you read this it will be past but hopefully a worthwhile exercise.

## SUBS DUE

By now you will probably all be aware that the 1984 Subscriptions are due and subscription notices will be posted shortly, if they have not been already. In VK5, this year, happily we did not need to raise subscription rates to increase our revenue. However, we did make some changes to bring us in line with other divisions. If you read page 43 of April 1983 Amateur Radio you will note that we are the only division that still differentiates

between country and city members and that with changes in the EDP system being mooted and membership application forms being reprinted this seemed like an appropriate time to bring about these changes. We hope that the country members will not take this as a personal affront, particularly at this time when we are doing our best to improve communications between us. At the same time we have brought the Family Membership into line with some of the other States and with what it should be, which is either Full or Associate membership (depending on whether you have a call sign or not) without the cost of AR.

## MORE PR

A non-amateur friend recently asked me to explain the contents of a tape which her husband had been lent by another amateur. The tape turned out to be the opening address to the RD Contest which, it was felt, they might both be interested in as they are members of an RSL Sub-group. Needless to

say I was only too happy to oblige (inc. sending showing her two past copies of AR with photographs of me and the Trophy.) The conclusion of all this was that they decided that they would like someone to speak on amateur radio at one of the meetings, so, never one to miss a PR opportunity, I gave her the President, Bill Wardrop's phone number as he did such a good job talking to the Kiwanis.

## DIARY DATES

4th-6th November Electronics Exhibition at Morphettville Racecourse  
20th November WIA Picnic at Bridgewater Oval  
22nd November WIA General meeting (subject unknown)

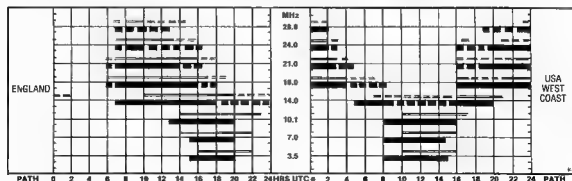
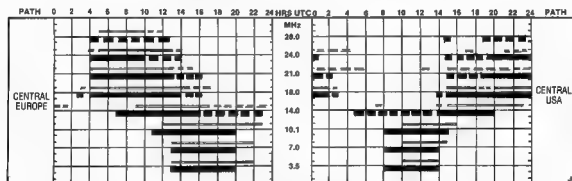
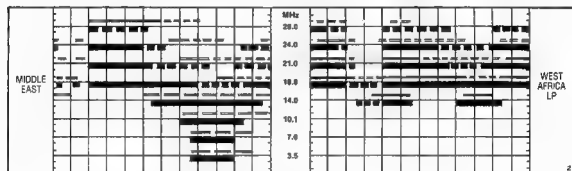
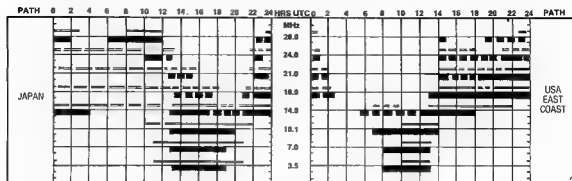
## NO BUY AND SELL ON NOVEMBER 29th

6th December Christmas meeting Thebarton Assembly Rooms. The speaker will be Wally Watkins VK2DFW on his recent visit to the Peoples Republic of China.

JB

# IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE



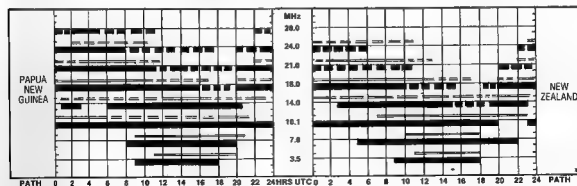
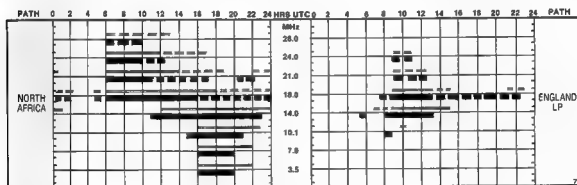
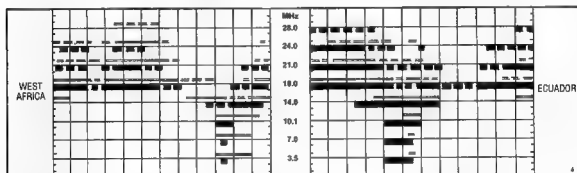
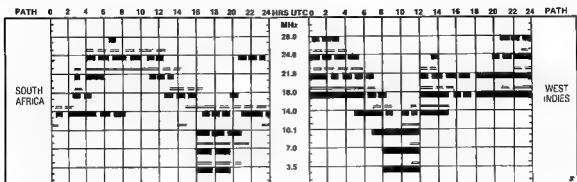
## LEGEND

From West Australia

From East Australia



Better than 50% of the month, but not every day



Predictions courtesy Department of Science and Environment IPS Sydney. All times in UTC.



Less than 50% of the month

PATHS — Unless otherwise indicated (i.e. LP = Long Path) all paths are Short Path.



# LETTERS TO THE EDITOR



Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

## CORAL COAST GROUP

I am writing to you to let you know about the Coral Coast Group. The Coral Coast Group which was started by Les Bell VK4LZ of Airlee Beach, Queensland on 28th September 1967 and has been going every day without a break since. Frequency 7.060 MHz Time 2100 UTC. The original call signs were VK4QW, VK4QB, VK4XZ and VK4ZV.

During that period there have been over 600 different stations on this group with many other I steners. It is probably the longest running net in the world with Stations from New Guinea down the coast to Victoria and sometimes Tasmania with an occasional ZL.

The net has been averaging lately around sixteen different stations per day. Les Bell's wife Bertha has kept all the records of the net up to date.

Les has been active in quite a few marine rescue operations and was associated with the tracking and communications of the raft, La Be Sa. He was very active during the war and is mentioned in the book about the coast watchers. He installed a lot of Radar equipment and has an OBE.

Les Bell VK4LZ will be 80 years old in January.

L E Daniels, VK2XZ  
8 Highfield Terrace  
Cardiff Heights NSW 2206

## GENTLEMAN'S AGREEMENT

The re-designation of the 'CW only' to 'narrow Bandwidth' on a gentleman's agreement basis will inevitably result in a lot of friction between CW operators, and those using faster baud rates. I cannot understand why the old band plan could not have been simply ratified and made official. Traditionally RTTY operators, and recently those using AMTOR and ASCII, have sought contacts in the grey area between the CW band and the SSB band, eg on 40 metres between about 7.035 and 7.045 MHz. This idea has worked out quite well, as it means a smaller band need be searched to find contacts.

Just where is the definition of 'Narrow-Band' going to come from? As the baud rate is increased, the occupied bandwidth increases also (Hartley's law). For instance amateurs with an interest in computers will probably want to send tapes of software to each other over the air at baud rates up to 1500 baud. Such a signal would easily occupy an SSB bandwidth. It can be imagined what sort of feelings would be generated among the die-hard CW crowd down on 7.002 MHz locked in battle for some exotic station with a data signal rattling away close by!

There are indications that the popularity of CW is as great, if not greater than ever (the number of stations in the Sunday CW net proves this). Stations using the only true narrow bandwidth mode should not be penalised by having to put shoulders with the spectrum goblins that we may expect in the years to come. A lot more work has to be done to work out a fair band plan which actually reflects the numbers of operators and their particular interest — and such a band plan made law, not simply a 'gentleman's agreement'.

For instance on 40 metres, 7.000 to 7.035 could be CW only, 7.035 to 7.045, RTTY, data etc, 7.045 and above, all modes. SSB enthusiasts may argue that CW and RTTY should not be allowed in the upper segment. It should be remembered however, that a clean telephony signal occupies only a fraction of the space that SSB uses, and it should not be difficult for SSB operators to avoid interference

from this source. This issue of band planning is a very emotional one, and more thought and discussion must be allowed to occur before any band plan is put into force.

Brew Diamond, VK3XU  
43 Boyana Crescent, Croydon, Vic 3136  
AR

## GRATITUDE

I am writing this note to express my gratitude. About four years ago I passed the exam for my novice (just) and I set myself two goals, 'DXCC' and ARRL 'WAS'.

I have both of these awards now and I now realise how much help I needed and received.

Firstly to DGC for giving me goals like myself a chance in amateur radio by bringing in the novice level.

To the wonderful people manning the bureau specially VK2, you were just great.

ARRL were very prompt re WAS.  
And last but not least the amateurs in Australia and throughout the world that helped me. I say but one word. THANKS

Lee J Butcher, VK2VUD  
124 Bayana Road  
Maroubra, NSW 2036  
AR

## THANKS AND APPRECIATION

On behalf of the Maryborough West State School P&C, may I extend to the many amateurs who supported our recent art union, our thanks and appreciation.

Unfortunately none of you was successful in winning any of the prizes. All three prizes however went to local residents.

Here are the winning ticket numbers, 1st Ticket 0683, 2nd 1801 and 3rd 3769.

The Micro Bee Computer prize proved very popular among amateurs. With this in mind, may I suggest the WIA could get a computer as a prize in a future competition (perhaps this competition could be associated with the payment of the 1984 WIA membership fee, where each member is given a lucky number on (prompt) payment of their 1984 dues).

Yours faithfully  
E L King, VK4QA  
15 Wilkes Street  
Maryborough, 4650  
AR

## TRIBUTE TO NARA, 9M2LN

I have written the enclosed as a tribute to Nara, 9M2LN, who became a silent key on 21st July, 1983. I was wondering if, in view of the great help he has been to so many VKs, it would be possible to print it in AR magazine.

This session is now carried on most ably by Heck, 9M2FR, in the tradition that Nara started.

Regards  
Joy Collins, VK2BX  
PO Box 22  
Tumut NSW 7000  
AR

## TO NARA — 9M2LN

Dear Nara, this must be, to you,  
Our last, our sad "goodbye".  
We always will remember you,  
Though many years go by

The key you used so expertly,  
Is silent evermore!

We will no longer hear its tone,  
So confident and sure.

And Nara's Group, as we were known,  
Became a growing band  
Of novices and SWLs,  
All over VK land.

Each day we tuned to 9M2,  
With paper, pen and key,  
And all relying on your help,  
To obtain ADCP.

And at 0200 every day  
Your CW was heard.  
You listened to our stumbling Morse,  
Without an unkind word!

And when we failed to copy yours  
Your patience was immense,  
With kindness and encouragement  
Although we were so dense!

Without your help we never would,  
Have passed telegraphy  
Your dedication to us all,  
Was very plain to see.

We never met you, Nara,  
And now we never will;  
But through all the VKs you have helped,  
We feel you're with us still!

And we'll just say "Thank you, Nara!"  
And our thoughts to you extend,  
May you rest in peace, dear Nara,  
Terima-Kasih, our dear friend

## ELECTRONIC HOBBYIST!

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VIC.  
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# GEOMAGNETIC & SUNSPOT ACTIVITY 1983

## Ap INDICES

MONTHLY	MEAN	HIGHEST DAILY
1/83	16	78 10/1
2/83	27	143 5/2
3/83	23	86 2/3
4/83	24	61 24/4
5/83	22	77 24/5
6/83	16	70 13/6
7/83	12	40 24/7

LOWEST	DAILY	DAYS OVER Ap 15
3	6/1	12
5	2/2	18
3	27/3	18
9	11/4	22
5	28/5	13
3	4/6	12
4	11/7	9

## CYCLE 21 RUNNING SMOOTHED SUNSPOT NUMBER

FINAL	SMOOTHED	SUNSPOT NUMBER
7/81	140.4	1/82 137.1
8/81	141.3	2/82 133.4
9/81	143.0	3/82 129.3
10/81	142.3	4/82 124.4
11/81	138.9	5/82 120.0
12/81	137.9	6/82 117.4

PROV	SMOOTHED	SUNSPOT NUMBER
7/82	115.3	1/83 92.8
8/82	109.5	
9/82	101.1	
10/82	95.7	
11/82	94.7	
12/82	94.6	

## PROVISIONAL MONTHLY MEAN SUNSPOT NUMBERS 1983

HIGHEST DAILY	LOWEST DAILY
1/83 85.8	110 6/1 55 3/1
2/83 50.1	98 29/2 10 14/2
3/83 88.5	109 5/3 12 13/3
4/83 79.7	137 30/4 36 5/4
5/83 100.2	132 19/5 60 31/5
6/83 90.6	143 23/6 59 30/6
7/83 82.1	114 22/7 40 28/7

LAST DATA PUBLISHED AR MAY 1983 P53  
Acknowledgement Sunspot Data: Sunspot Index Data Center, Brussels.

Geomagnetic Data: IUGG Assoc of Geomagnetism and Aeronomy, Göttingen.

AR



# QSP

## AMATEUR ON FLIGHT 007

A Korean amateur, Lim Sang Ki HL1IJ was one of the crew members on the Korean airliner which was shot down on 1st September, 1983.

AR

# Silent Keys

It is with deep regret we record the passing of—

MR LEN DODDS  
MR C HEDLEY

VK4GD  
VK2MT

LEN DODDS VK4GD

Amateur radio, on the 21st September, 1983 lost one of its great members, with the passing away in Brisbane of Len Dodds, VK4GD.

The Townsville Amateur Radio Club were pleased last year to offer Len Life Membership of the club, a position which had pleased him greatly. See p40, January AR. In a press statement at the time Len had intimated that one of the greatest attractions of amateur radio was the brotherhood it created—that all men are equal no matter what work they did. That is how it was with Len. He was a wonderful friend to all—helping the newly licensed hewer or ragchewer, or discussing technical matters.

Len was seventy-five years of age, and had been interested in radio for over sixty years. His first crystal set was built in 1923, although he did not take out an amateur licence until 1927, when he was in the Navy doing a course in signal operating. His call sign then was OZKLO, which later became VK2LO. During World War II, Len was in the RAAF. He settled in Townsville and obtained his present call sign of VK4LD.

Despite the fact that he was somewhat restricted in the past few years by the loss of part of his left leg, Len's cheery nature never left him. He was a wonderful friend to all at the TARC, and monitored the repeater regularly. We will not forget that wonderful infectious cackle. We will never forget the man who was one of the founders of the Club, and throughout all the years was there to assist and cheer us all. Len Dodds, VK4GD, RIP.

Evelyn VK4ED

# HAMADS

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.

\* Please insert STD code with phone numbers when you advertise.

- Eight lines free to all WIA members. \$9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

## TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is \$15 for four lines, plus \$2 per line

(or part thereof) minimum charge \$15 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

**AMINON FERROMAGNETIC CORES:** Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE TO: RJ & US IMPORTS, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken Street, Oakley, 2223).

**CB RADIOS** 559. Walkie talkies, short wave radios, military, outback, business, amateur, marine, repairs. RTTY Siemens 100 A printer \$120; base mic \$45; ultrasonic alarm \$35; all ham bands on a single 6 ft whip, 1.8 to 30 MHz, for base or mobile \$300; aerials, installations, demonstrations, 40 Ch CB conversions, accessories, new rigs weekly. BRIDGE DISPOSALS, 12 Old Town Plaza, opp Bankstown Railway Station, NSW. Mail order service and all enquiries to 2 Griffith Avenue, Roseville, 2069, or phone Sam VK2BVS, 7 pm to 9 pm only on (02) 407 1066.

## WANTED — NSW

**ATLAS 210X** accessories, VXO, console P5, digi readout. VK2BBG, Ph: (042) 28 8608.

**COIL FORMERS**, 4 & 6 pin UX base ribbed & grooved formers. N Burton, 130 The River Road, Revesby, NSW 2212. Ph: (02) 714 1827.

**COMPUTER SOFTWARE** for Osborne 1 to operate Macronics M-30 RTTY interface. David Pilley VK2AYD, PO Box 231, Frenchs Forest, 2086. Ph: (02) 452 5441.

**HF LINEAR AMP** or suitable parts to build same. Also Communications rx. Allan VK2EFM, 21 Yarravel Street, Kempsey 2440. Ph: (065) 62 6265.

**ICOM IC-22S** synthesised 2m txcvr. Complete in reliable working order. Top price for good unit. Ph: Sydney (02) 599 1126 anytime.

**KENWOOD SP520** or SP 820 speaker unit. VK2APJ QTHR. Ph: (047) 59 1651.

**XITEX SCT-100** glass RTTY board complete. Either operating or faulty. Ring Geoff VK2AZT with price and condition. Ph: (069) 42 1382.

## WANTED — VIC

**HIGH POWERED TX TUBES.** All types and makes, ie: forced air ceramic, radial beam triodes, tetrodes, pentodes, sockets and chimneys. New or used but must work. For genuine collector. Please no outrageous prices. Collection now at 32 tubes and growing. Chris VK3FY/DHU QTHR.

**HUSTLER 14 MHz** element to supplement existing 7MHz whip unit. Also a 50A moving coil DC centre zero panel mounting meter complete with shunt. VK3AVH QTHR. Ph: (059) 88 6797.

**IC256A** to buy or swap with cash adjustment, IC22S, all Vic repeaters programmed, BNC connection. Internal screw in fuse. VK3DPM QTHR. Ph: (03) 596 3968.

**INTERGATED CIRCUITS** Old Motorola RTL. MC's 750, 792, 789, 724, 725, 788. Any would be greatly appreciated. Roy VK3AOH.

**PROP PITCH ROTATOR** complete or parts, any condition. Also selsyns etc for direction indicator. Don VK3DJF QTHR. Ph: (03) 848 3059.

## WANTED — WA

**MANUALS** Kenwood TS520S. Will pay for manual or photocopies & postage. Tony VK6BA, C/- 34 Dean Street, Mt Barker, 6324.

## FOR SALE — ACT

**ICOM 720A** CW filter, PS15 power supply and AT100 auto tuner all with manuals & boxes. \$1200 ONO. Yaezu FT208R handheld with box & manual \$220 ONO. Hewlett Packard HP41C calculator with games pack and 2 solution books \$230 ONO. Ten Tec Argonaut Keyer, mike and notch filter \$330 ONO. Glen Torr. Ph: (062) 31 3343. AH.

**ICOM IC730S** 20W output esp for Novice \$450. Kenwood TR7730 2m FM \$280. Tandy 4 pen graphic colour printer \$250. VK1KHV QTHR. Ph: (062) 51 5632.

**YAESU FT101E** CW filter, manual, hand mike, spare fittings. \$500. ONO. Y0100 monitorscope \$200 ONO. FRG7 communications rx \$250 ONO. YD148 desk mike \$30. Shure 444 desk mike \$60. Jack VK1FM QTHR. Ph: (062) 48 9304.

## FOR SALE — NSW

**ANTENNA TUNER** Ten Tec 247. 1.8-30MHz, built in SWR meter, long wire bal line, coax output. 100 W continuous 300 W peak. \$110. VK2KSD QTHR. Ph: (02) 456 1577.

**ANTENNA TUNER** Yaezu FC 107 as new with manual \$150. Oskorlok SWR & output twin meter as new \$70. Pair new 7 boxed 6146B RCA valves \$20. Vibroplex Key \$20. Simplex autokey \$10. AWA Morse key \$10. VK2AXR. Ph: (02) 477 6275.

**COLLINS KW2M** as new with spkr & pwr supply. All factory updates plus DX research processor. All manuals and bulletins. Box spare valves. \$800 ONO. VK2PMA QTHR. Ph: (02) 449 8690. BH.

**COLLINS KW360**. Collins R390A. Robot keyboard \$80. JIL SX100 scanner. Datong up converter UO-1. Tokyo Hy-Power labs HL-400B 3-30MHz amp. Ph: (02) 787 2958.

**COMPLETE YAESU RIG** in good working order. Txcvr FT33010 with CW/AM filters, power supply FP3010, antenna tuner FC902, dummy load-wattmeter YP150. HyGain vertical antenna 14AVB/WB, vertical antenna mounting kit 14RMO, 35 feet coax lead-in cable, original manuals and boxes. Total price \$1150. Ph: (02) 95 6567.

**FT101E \$450**, 2 Walkie Talkies, 1W 2ch 28.5MHz each \$227. Computer keyboard, encoded ASCII, 7 LED's, 65 keys \$70, valves 6H5, 2 matched for SS, 003A, 6DV02-6, ECL80, 6N80, PL573, 6AK5W, 6AU6, 6BA6, 6BE6, 6J70 all \$1 each. Add postage. VK29MI QTHR. Ph: (02) 771 1657.

**JIL 8X-100 SCANNER** \$230 with service manual. Sony ICF-2001 synthesised rx \$175. GOS 955 6.5MHz oscilloscope \$200. Diawa MC-330 mic compressor \$50. All as new. VK2 L20118 QTHR. Ph: (069) 63 6944.

**MOD 15 TELEPRINTER** \$40. Kilenschmidt TD and reper. (Reads tape, punches tape & prints on tape) \$40. VK29QA. Ph: (049) 83 8981.

**PHILIPS FM 321** 70cm FM \$200. Icom IC225 2m FM with homebuilt external frequency programmer \$220. 2m 80W linear amplifier \$120. All VGC. VK29BD. Ph: (02) 601 2580 in mornings or weekends.

**SWAN 350** \$200. Yaezu FT101B \$450. Enquire (046) 77 1842.

**TRANSCEIVERS** NEC 3-30MHz AM/SSB 600. TS130S with filters, 4 memories. VFO \$650. Marconi sig/gen 68-470MHz. AM/FM \$100. Deviation meter FM \$30. Antennae, quad, HyGain 3 band, 2 element. \$200. Ph: (02) 529 3287.

**YAESU FR87** communications rx in immaculate condition, little use. \$220 ONO, plus freight. Can arrange free delivery to VK1 area. Owen. Ph: (0649) 2 1555 BH.

**YAESU FR87** rx with manual. VGC condition. \$190 ONO. Bernard VK2UUI. Ph: (02) 70 3871.

## FOR SALE — VIC

**COMPLETE MOBILE/BASE** HF station. Yaezu FT-707 series. FT-707 txcvr, FP-707 power supply, FC-707 ATU/SWB/dummy load, YM-37 mike, MMB-2 mobile bracket. Dick Smith 5-band strapped vertical. Excellent condition, cartons & manuals. \$985. Neil May VK3VZY QTHR. Ph: (03) 478 7660.

**FT-101** comprehensive workshop manual as new \$20. 6-6J56C final tubes for FT-101 \$9 each. 3-12BY7 driver tubes for FT-101 \$3 each. All tubes unused. FT-101 owners manual \$5. VK3BFB. Ph: (03) 587 1593.

**HIDAKA MULTI-BAND TRAP VERTICAL**. 80-10m VS41/V580KR. Complete with guys, coils, insulators. VSR6 radials, 50ohm lead, instructions. New condition. Disassembled, ready to take away. \$65. Bill VK3GA QTHR. Ph: (03) 29 7256.

**HI-QUAD** by HyGain, triband antenna 10-15-20m. Good condition, on ground. \$200. VK3BDM. Ph: 49 5160 BH.

**IC-225** 2m FM 10W synthesised txcvr. 1 careful owner. Supplied with bracket, mike, manual, remote VFO, \$200. TR-3200 70 cm FM 2W port txcvr. Good condition. With mic, nicads, charger, manual. Fitted with 11 ch. \$200. Ray VK1ZJR/J QTHR. Ph: (03) 368 2285.

**ICOM IC-740**. As new, only 6 months old. Must sell \$825. ONO. Peter VK3PBO/ZOV QTHR. Ph: (058) 21 6070.

**RTTY EQUIPMENT**. Model 15 printer/keyboard. Model 14 typing reper, complete sets manuals for model 14/15 equipment. 1 spare printer for parts. 240V/110V 300VA Xformer for above gear. Home brew mod/demod plus CRT tuning display with power supply. All interconnecting cables, 6 rolls paper. Can deliver. \$195 the lot. VK3ZWP, 5 Ironbark Court, Frankston Nth. 3200. Ph: (03) 786 9885.

**SHURE 444A** dual impedance desk mike. VGC \$45. Bill VK3SB QTHR. Ph: (03) 584 3521.

**SIEMANS** model 100 teleprinter. Excellent condition. Has tape reader attached. \$50 ONO. HF Linear amplifier. Yaezu FL 2000. 400W PEP. Good condition. \$300 ONO. Scotty VK3ZR QTHR. Ph: (03) 890 4645.

**TRIO CS-1570 CRD** dual trace. DC - 30MHz complete with instruction manual & 2 Trio PC 28 probes. Excellent performer as new. Cost \$360, sell \$650. Peter VK3XDP. Bendigo. (054) 43 8192.

**YAESU FT-101E AC/DC** complete with all accessories, handbook and original box. \$400. VK3DOK QTHR. Ph: (03) 547 5694.

**YAESU FT101E**. IC. IC211, IC551, also Philips colour generator type 550B & AWA volt ohmyst (large meter version). Mike VK3AJD. Ph: (03) 306 9771.

**YAESU FT-200R** 2m all mode txcvr. Brand new incl nicad batt. \$300. John VK3XHE. Ph: (03) 879 1773.

## FOR SALE — QLD

**CHIRWIDE CE 52** duo band yagi beam for 10m & 15m. 4 elements on 10m & 4 elements on 15m. 5 elements in all on a 6 metre boom. VGC. Retail for \$205, sell \$140. Ph: (07) 205 3238.

**FT-200** rx, p.p.s.m, spare tubes. Full 10m \$250, 2m amp, homebrew 2-10W FM \$20. Kevin VK4ZKE. Ph: (07) 377 3785 BH. (07) 201 3006 AH.

**HIDAKA VS22** 10-15m duoband yagi. 3 element \$150. KR400 Rotator & control, plus 19m of control cable \$120. Also Micronita power supply, 6A \$35. VK4AVR QTHR. Ph: (07) 345 2486.

**TRIO KENWOOD TS-830S**, \$1000. Freight paid anywhere in Old. Stewart VK4NI. Ph: (07) 71 3600.

**YAESU FT-101B**. Good condition, with manual & mike in original carton. Includes mod for 10MHz operation. \$379 plus freight. Merv VK4ZE QTHR. Ph: (07) 343 5061.

**YAESU FT-101E** txcvr in top condition \$500. Yaezu Linear PL 2100 \$375. D104 crystal mike, new \$75. VK4AGL QTHR. Ph: (07) 41 2315.

## FOR SALE — TAS

**FT-101Z** txcvr with YE7A mike & manual. Bought 9 months ago — digi readout, fan & CW narrow filter fitted. Cost \$1200, sell for \$800. Bill VK7VA, Launceston. Aust Maritime College Campus, Room 714 or leave message on (003) 26 2436.

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## HIGH TECHNOLOGY COMPUTER SYSTEMS PTY LTD

Amateur Radio regrets a printing error in the October issue.

We printed the price of the Commodore 64 as being \$229.00 instead of \$499.00.

We apologise for the mistake to High Technology Computer Systems as well as to our readers for any inconvenience caused.

John Hill,  
Advertising Manager

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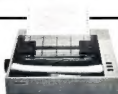
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